

WEST Search History

DATE: Monday, March 24, 2003

| <u>Set Name</u> side by side | <u>Query</u> | <u>Hit Count</u> | <u>Set Name</u> result set |
|---|------------------------|------------------|-------------------------------|
| <i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=OR</i> | | | |
| L6 | l2 and oocysts | 12 | L6 |
| L5 | l4 and oocysts | 5 | L5 |
| L4 | L3 and cryptosporidium | 36 | L4 |
| L3 | L2 and produc? | 4466 | L3 |
| L2 | IgG1 | 4928 | L2 |
| <i>DB=USPT; PLUR=YES; OP=OR</i> | | | |
| L1 | 5643772 | 7 | L1 |

END OF SEARCH HISTORY

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Search Results - Record(s) 11 through 12 of 12 returned.

☐ 11. WO 9852974 A1. 19 May 98. 26 Nov 98. ANTIBODIES TO CRYPTOSPORIDIUM. VESEY, GRAHAM, et al. C07K016/20; G01N033/569 G01N033/577.

☐ 12. WO 9852974 A1 AU 738798 B AU 9875117 A EP 991667 A1. New IgG1 antibodies specific to Cryptosporidium oocyst surface - useful in analysis of e.g. drinking water, prepared e.g. using antigen obtained from oocyst wall. SLADE, M B, et al. C07K016/20 G01N033/569 G01N033/577.

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| Terms | Documents |
|----------------|-----------|
| l2 and oocysts | 12 |

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-
- ☐ 1. [6514697](#). 06 Jun 00; 04 Feb 03. Methods for detection of *Cryptosporidium* species and isolates and for diagnosis of *Cryptosporidium* infections. Petersen; Carolyn, et al. 435/6; 435/91.2 530/350 536/23.1 536/24.3. C12Q001/68 C07H021/02 C07H021/04 C12P019/34 C07K014/00.
-
- ☐ 2. [6395517](#). 18 Jul 00; 28 May 02. Methods and kits for detection of *cryptosporidium parvum*. Abbaszadegan; Morteza, et al. 435/91.2; 435/6 435/91.1 536/22.1 536/23.1 536/24.1 536/24.2 536/24.3 536/24.33. C12Q001/68 C12P019/34 C07H021/00 C07H021/04.
-
- ☐ 3. [6153411](#). 30 Oct 98; 28 Nov 00. Methods and kits for detection of *Cryptosporidium parvum* using immunomagnetic separation and amplification. Abbaszadegan; Morteza, et al. 435/91.2; 435/6 536/23.1 536/24.3 536/24.31 536/24.32 536/24.33. C12P019/34 C12Q001/68 C07H021/04.
-
- ☐ 4. [6139757](#). 28 Mar 97; 31 Oct 00. Method of separating cells from blood using a filter having a changeable porosity. Ohmura; Yoshitaka, et al. 210/797; 210/351 210/453 210/489 210/767 435/2. B01D025/26.
-
- ☐ 5. [6071518](#). 12 Sep 97; 06 Jun 00. GP900 glycoprotein and fragments for treatment and detection/diagnosis of *cryptosporidium*. Petersen; Carolyn. 424/139.1; 424/151.1 424/172.1 424/191.1 424/192.1 424/269.1 530/350 536/23.4 536/23.7. A61K039/395 A61K039/002 C12N015/31 C07K014/44.
-
- ☐ 6. [6015882](#). 14 Aug 96; 18 Jan 00. Vaccines, antibodies, proteins, glycoproteins, DNAs and RNAs for prophylaxis and treatment of *Cryptosporidium parvum* infections. Petersen; Carolyn, et al. 530/350; 424/191.1. C07K001/00.
-
- ☐ 7. [5643772](#). 03 Apr 95; 01 Jul 97. *Cryptosporidium* hybrid vector and transformed host cells. Petersen; Carolyn, et al. 435/252.33; 435/252.3 435/320.1 536/23.7. C12N015/00 C12N001/20.
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| Terms | Documents |
|---------|-----------|
| 5643772 | 7 |

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(FILE 'HOME' ENTERED AT 19:20:21 ON 24 MAR 2003)

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH,
USPATFULL, JAPIO' ENTERED AT 19:20:29 ON 24 MAR 2003

| | |
|----|----------------------|
| L1 | 133 S CRYTOSPORIDIUM |
| L2 | 62 S L1 AND OOCYSTS |
| L3 | 1 S L2 AND IGG1 |
| L4 | 4 S L2 AND IGG |
| L5 | 38 S L1 AND ANTIBOD? |

[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 1 of 1 returned.**

-
- ☐ 1. 6475747. 28 Oct 97; 05 Nov 02. Method for detecting *Cryptosporidium parvum* oocysts. Tsang; Victor C. W., et al. 435/7.22; 435/7.7 435/7.92 436/536 436/541. G01N033/53 G01N033/569 G01N033/543 G01N033/536.
-

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| Terms | Documents |
|----------|-----------|
| 97/08204 | 1 |

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FILE 'HOME' ENTERED AT 19:20:21 ON 24 MAR 2003

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CA INDEXING COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'JAPIO' ENTERED AT 19:20:29 ON 24 MAR 2003
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=> s cryptosporidium
L1 133 CRYPTOSPORIDIUM

=> s l1 and oocysts
L2 62 L1 AND OOCYSTS

=> s l2 and IgG1
L3 1 L2 AND IGG1

=> d l3 ibib abs

L3 ANSWER 1 OF 1 USPATFULL

ACCESSION NUMBER: 97:56538 USPATFULL

TITLE: Cryptosporidium hybrid vector and transformed host cells

INVENTOR(S): Petersen, Carolyn, Berkeley, CA, United States
Leech, James, Daly City, CA, United States
Nelson, Richard C., San Francisco, CA, United States
Gut, Jiri, Novato, CA, United States

PATENT ASSIGNEE(S): The Regents of the University of California, Oakland, CA, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|--|------|--------------|
| PATENT INFORMATION: | US 5643772 | | 19970701 |
| APPLICATION INFO.: | US 1995-415751 | | 19950403 (8) |
| RELATED APPLN. INFO.: | Continuation of Ser. No. US 1993-71880, filed on 1 Jun 1993, now abandoned which is a continuation-in-part of Ser. No. US 1992-891301, filed on 29 May 1992, now | | |

DOCUMENT TYPE: abandoned
FILE SEGMENT: Utility
PRIMARY EXAMINER: Granted
ASSISTANT EXAMINER: Housel, James C.
LEGAL REPRESENTATIVE: Portner, Ginny Allen
NUMBER OF CLAIMS: Verny, Hana
EXEMPLARY CLAIM: 4
NUMBER OF DRAWINGS: 1
LINE COUNT: 7 Drawing Figure(s); 4 Drawing Page(s)
2279

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention comprises a *Cryptosporidium* hybrid vector comprising a regulatory DNA segment operably coupled to a DNA fragment encoding a polypeptide to which anti-*Cryptosporidium* antibodies specifically bind and transformed host cells comprising the hybrid vectors.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> s s l2 and igg
MISSING OPERATOR S L2
The search profile that was entered contains terms or nested terms that are not separated by a logical operator.

=> s l2 and igg
L4 4 L2 AND IGG

=> d l4 1-4 ibib abs

L4 ANSWER 1 OF 4 LIFESCI COPYRIGHT 2003 CSA
ACCESSION NUMBER: 88:549 LIFESCI
TITLE: Lacteal immunity to enteric cryptosporidiosis in mice:
Immune dams do not protect their suckling pups.
AUTHOR: Moon, H.W.; Woodmansee, D.B.; Harp, J.A.; Abel, S.; Ungar, B.L.P.
CORPORATE SOURCE: Natl. Anim. Dis. Cent., Agric. Res. Serv., U.S. Dep.
Agric., Ames, IA 50010, USA
SOURCE: INFECT. IMMUN., (1988) vol. 56, no. 3, pp. 649-653.
DOCUMENT TYPE: Journal
FILE SEGMENT: K; F
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The susceptibilities of passively immunized principal and nonimmunized control suckling mice to orogastric challenge with *Cryptosporidium parvum* oocysts were compared. Principals were suckled by dams that had recovered from *C. parvum* infection. Controls were suckled by dams reared free of *C. parvum* infection. Principals and controls were equally susceptible to challenge. Principals were susceptible even when their dams were hyperimmunized by oral and parenteral booster inoculations with *C. parvum* oocysts. Immune dams produced serum antibody against *C. parvum*, while nonimmune dams did not. Anti-cryptosporidia immunoglobulin G (IgG) and IgA were demonstrated in whey extracted from the stomachs of principals that had suckled immune dams but not in whey extracted from the stomachs of controls. It was concluded that passive lacteal immunity is not an efficient means of protection against cryptosporidiosis in mice. As in other coccidian infections, protective immunity against cryptosporidiosis may depend more on immune cells than on antibody.

L4 ANSWER 2 OF 4 USPATFULL
ACCESSION NUMBER: 2003:33298 USPATFULL
TITLE: Methods for detection of *Cryptosporidium* species and isolates and for diagnosis of *Cryptosporidium* infections
INVENTOR(S): Petersen, Carolyn, San Diego, CA, United States
Barnes, Debra A., Oakland, CA, United States

PATENT ASSIGNEE(S): Nelson, Richard C., Sausalito, CA, United States
Gut, Jiri, Novato, CA, United States
The Regents of the University of California, Oakland,
CA, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|---|------|--------------|
| PATENT INFORMATION: | US 6514697 | B1 | 20030204 |
| APPLICATION INFO.: | US 2000-588995 | | 20000606 (9) |
| RELATED APPLN. INFO.: | Continuation-in-part of Ser. No. US 1997-827171, filed on 27 Mar 1997, now patented, Pat. No. US 6254869 Continuation-in-part of Ser. No. US 1997-928361, filed on 12 Sep 1997, now patented, Pat. No. US 6071518 Continuation-in-part of Ser. No. US 1996-700651, filed on 14 Aug 1996, now patented, Pat. No. US 6015882 Continuation-in-part of Ser. No. US 1995-415751, filed on 3 Apr 1995, now patented, Pat. No. US 5643772 Continuation of Ser. No. US 1993-71880, filed on 1 Jun 1993, now abandoned Continuation-in-part of Ser. No. US 1992-891301, filed on 29 May 1992, now abandoned | | |

| | NUMBER | DATE |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | US 1996-26062P | 19960913 (60) |
| | US 1996-14233P | 19960327 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | GRANTED | |
| PRIMARY EXAMINER: | Whisenant, Ethan C. | |
| LEGAL REPRESENTATIVE: | Verny, Hana | |
| NUMBER OF CLAIMS: | 34 | |
| EXEMPLARY CLAIM: | 1 | |
| NUMBER OF DRAWINGS: | 19 Drawing Figure(s); 14 Drawing Page(s) | |
| LINE COUNT: | 4181 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Cryptosporidium GP900, P68 and cryptopain antigens, antibodies, DNA or RNA for detection of Cryptosporidium in biological and environmental samples. A method for diagnosis of cryptosporidiosis. Kits and assays for the detection of Cryptosporidium comprising antigens, antibody, DNA or RNA components for immunological detection of Cryptosporidium protein with antibody, or detection of Cryptosporidium DNA by PCR amplification with GP900, P68 or cryptopain primers and probes for hybridization.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 4 USPATFULL

ACCESSION NUMBER: 1999:40171 USPATFULL
TITLE: Methods and articles of manufacture for the detection of cryptosporidium occysts
INVENTOR(S): Crabb, Joseph H., Newfield, ME, United States
Turner, Nathan, Newmarket, NH, United States
PATENT ASSIGNEE(S): ImmuCell Corporation, Portland, ME, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|--|------|--------------|
| PATENT INFORMATION: | US 5888748 | | 19990330 |
| APPLICATION INFO.: | US 1995-502328 | | 19950713 (8) |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | Granted | | |
| PRIMARY EXAMINER: | Housel, James C. | | |
| ASSISTANT EXAMINER: | Portmer, Ginny Allen | | |
| LEGAL REPRESENTATIVE: | Farrell, Kevin M. | | |
| NUMBER OF CLAIMS: | 16 | | |
| EXEMPLARY CLAIM: | 1 | | |
| NUMBER OF DRAWINGS: | 2 Drawing Figure(s); 1 Drawing Page(s) | | |
| LINE COUNT: | 785 | | |

AB Embodiments of the present invention relate to methods and articles of manufacture for the detection of Giardia cysts and **Cryptosporidium oocysts**.

L4 ANSWER 4 OF 4 USPATFULL

ACCESSION NUMBER: 97:56538 USPATFULL
TITLE: Cryptosporidium hybrid vector and transformed host cells
INVENTOR(S): Petersen, Carolyn, Berkeley, CA, United States
 Leech, James, Daly City, CA, United States
 Nelson, Richard C., San Francisco, CA, United States
 Gut, Jiri, Novato, CA, United States
PATENT ASSIGNEE(S): The Regents of the University of California, Oakland, CA, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|--|------|--------------|
| PATENT INFORMATION: | US 5643772 | | 19970701 |
| APPLICATION INFO.: | US 1995-415751 | | 19950403 (8) |
| RELATED APPLN. INFO.: | Continuation of Ser. No. US 1993-71880, filed on 1 Jun 1993, now abandoned which is a continuation-in-part of Ser. No. US 1992-891301, filed on 29 May 1992, now abandoned | | |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | Granted | | |
| PRIMARY EXAMINER: | Housel, James C. | | |
| ASSISTANT EXAMINER: | Portner, Ginny Allen | | |
| LEGAL REPRESENTATIVE: | Verny, Hana | | |
| NUMBER OF CLAIMS: | 4 | | |
| EXEMPLARY CLAIM: | 1 | | |
| NUMBER OF DRAWINGS: | 7 Drawing Figure(s); 4 Drawing Page(s) | | |
| LINE COUNT: | 2279 | | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention comprises a Cryptosporidium hybrid vector comprising a regulatory DNA segment operably coupled to a DNA fragment encoding a polypeptide to which anti-Cryptosporidium antibodies specifically bind and transformed host cells comprising the hybrid vectors.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH, USPATFULL, JAPIO' ENTERED AT 19:20:29 ON 24 MAR 2003

L1 133 S CRYPTOSPORIDIUM
L2 62 S L1 AND OOCYSTS
L3 1 S L2 AND IGG1
L4 4 S L2 AND IGG

=> s l1 and antibod?

L5 38 L1 AND ANTIBOD?

=> d l5 1-38 ibib abs

L5 ANSWER 1 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 2003:129704 BIOSIS
DOCUMENT NUMBER: PREV200300129704
TITLE: Methods for detection of **Cryptosporidium** species and isolates and for diagnosis of Cryptosporidium infections.
AUTHOR(S): Petersen, Carolyn (1); Barnes, Debra A.; Nelson, Richard C.; Gut, Jiri

CORPORATE SOURCE: (1) San Diego, CA, USA USA
ASSIGNEE: The Regents of the University of California
PATENT INFORMATION: US 6514697 February 04, 2003
SOURCE: Official Gazette of the United States Patent and Trademark
Office Patents, (Feb. 4 2003) Vol. 1267, No. 1, pp. No
Pagination. <http://www.uspto.gov/web/menu/patdata.html>.
e-file.
ISSN: 0098-1133.

DOCUMENT TYPE: Patent
LANGUAGE: English

AB Cryptosporidium GP900, P68 and cryptopain antigens, **antibodies**,
DNA or RNA for detection of Cryptosporidium in biological and
environmental samples. A method for diagnosis of cryptosporidiosis. Kits
and assays for the detection of Cryptosporidium comprising antigens,
antibody, DNA or RNA components for immunological detection of
Cryptosporidium protein with **antibody**, or detection of
Cryptosporidium DNA by PCR amplification with GP900, P68 or cryptopain
primers and probes for hybridization.

L5 ANSWER 2 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 2002:119129 BIOSIS

DOCUMENT NUMBER: PREV200200119129

TITLE: Occurrence of Cryptosporidium and Giardia in wild ducks
along the Rio Grande River Valley in southern New Mexico.

AUTHOR(S): Kuhn, Ryan C.; Rock, Channah M.; Oshima, Kevin H. (1)

CORPORATE SOURCE: (1) Department of Biology, New Mexico State University,
Dept. 3AF, Las Cruces, NM, 88003: koshima@nmsu.edu USA

SOURCE: Applied and Environmental Microbiology, (January, 2002)
Vol. 68, No. 1, pp. 161-165. <http://www.journals.asm.org>.
print.
ISSN: 0099-2240.

DOCUMENT TYPE: Article
LANGUAGE: English

AB Fecal samples were taken from wild ducks on the lower Rio Grande River
around Las Cruces, N. Mex., from September 2000 to January 2001. Giardia
cysts and Cryptosporidium oocysts were purified from 69 samples by sucrose
enrichment followed by cesium chloride (CsCl) gradient centrifugation and
were viewed via fluorescent-**antibody** (FA) staining. For some
samples, recovered cysts and oocysts were further screened via PCR to
determine the presence of Giardia lamblia and **Cryptosporidium**
parvum. The results of this study indicate that 49% of the ducks were
carriers of Cryptosporidium, and the Cryptosporidium oocyst concentrations
ranged from 0 to 2,182 oocysts per g of feces (mean +/- standard deviation,
47.53 +/- 270.3 oocysts per g); also, 28% of the ducks were positive for
Giardia, and the Giardia cyst concentrations ranged from 0 to 29,293 cysts
per g of feces (mean +/- standard deviation, 436 +/- 3,525.4 cysts per g).
Of the 69 samples, only 14 had (oo)cyst concentrations that were above the
PCR detection limit. Samples did test positive for Cryptosporidium sp.
However, C. parvum and G. lamblia were not detected in any of the 14
samples tested by PCR. Ducks on their southern migration through southern
New Mexico were positive for Cryptosporidium and Giardia as determined by
FA staining, but C. parvum and G. lamblia were not detected.

L5 ANSWER 3 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1999:482348 BIOSIS

DOCUMENT NUMBER: PREV199900482348

TITLE: CD40-CD40 ligand interactions augment survival of normal
mice, but not CD40 ligand knockout mice, challenged orally
with Salmonella dublin.

AUTHOR(S): Marriott, Ian; Thomas, Elaine K.; Bost, Kenneth L. (1)

CORPORATE SOURCE: (1) Department of Biology, University of North Carolina at
Charlotte, 9201 University City Blvd., Charlotte, NC, 28223
USA

SOURCE: Infection and Immunity, (Oct., 1999) Vol. 67, No. 10, pp.
5253-5257.
ISSN: 0019-9567.

DOCUMENT TYPE: Article

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Interactions between CD40 expressed on macrophages and CD40 ligand expressed on T lymphocytes can be an important signal for optimal macrophage activation. Previous studies have demonstrated that the optimal response against certain intracellular pathogens (e.g., *Cryptosporidium* and *Leishmania* spp.) by macrophages requires CD40-CD40 ligand interactions. However, this finding is not universal, since two recent reports utilizing CD40 knockout mice have shown no such contribution to the protective immune response against *Mycobacterium tuberculosis* or *Histoplasma capsulatum*. We demonstrate here that CD40-CD40 ligand interactions are significant events in the protective response against the intracellular pathogen *Salmonella dublin* in normal mice but not for animals genetically deficient in CD40 ligand expression. Treating BALB/c mice exogenously with a CD40 agonist (i.e., soluble trimeric CD40 ligand) increased resistance against a lethal, orally administered dose of *S. dublin*. Conversely, in vivo administration of a monoclonal **antibody** against CD40 ligand to block endogenous CD40-CD40 ligand interactions resulted in a decreased resistance to salmonellosis. In contrast, CD40 ligand knockout mice demonstrated no increased susceptibility to salmonellosis. In vitro treatment of *Salmonella*-infected macrophages from BALB/c mice with soluble trimeric CD40 ligand resulted in an elevated production of interleukin 12p70 by these cells, suggesting a mechanism whereby CD40-CD40 ligand interactions might enhance protective immune responses to this pathogen. Taken together, these studies strongly suggest that CD40-CD40 ligand interactions in normal mice play an important protective role in immune responses against the gram-negative, intracellular pathogen *S. dublin*.

L5 ANSWER 4 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1998:139640 BIOSIS

DOCUMENT NUMBER: PREV199800139640

TITLE: Recovery of waterborne *Cryptosporidium parvum* oocysts by freshwater benthic clams (*Corbicula fluminea*).
AUTHOR(S): Graczyk, Thaddeus K. (1); Fayer, Ronald; Cranfield, Michael R.; Conn, David Bruce
CORPORATE SOURCE: (1) Johns Hopkins Univ., Sch. Hygiene Public Health, Dep. Molecular Microbiol. Immunol., 615 N. Wolfe St., Baltimore, MD 21205 USA
SOURCE: Applied and Environmental Microbiology, (Feb., 1998) Vol. 64, No. 2, pp. 427-430.
ISSN: 0099-2240.

DOCUMENT TYPE: Article

LANGUAGE: English

AB Asian freshwater clams, *Corbicula fluminea*, exposed for 24 h to 38 liters of water contaminated with infectious *Cryptosporidium parvum* oocysts (1.00 X 10⁶ oocysts/liter; approximately 1.9 X 10⁵ oocysts/clam) were examined (hemolymph, gills, gastrointestinal (GI) tract, and feces) on days 1, 2, 3, 7, and 14 postexposure (PE). No oocysts were detected in the water 24 h after the contamination event. The percentage of oocyst-containing clams varied from 20 to 100%, depending on the type of tissue examined and the technique used-acid-fast stain (AFS) or immunofluorescent **antibody** (IFA). The oocysts were found in clam tissues and feces on days 1 through 14 PE; the oocysts extracted from the tissues on day 7 PE were infectious for neonatal BALB/c mice. Overall, the highest number of positive samples was obtained when gills and GI tracts were processed with IFA (prevalence, 97.5%). A comparison of the relative oocyst numbers indicated that overall, 58.3% of the oocysts were found in clam tissues and 41.7% were found in feces when IFA was used; when AFS was used, the values were 51.9 and 48.1%, respectively. Clam-released oocysts were always surrounded by feces; no free oocysts or oocysts disassociated from fecal matter were observed. The results indicate that these benthic freshwater clams are capable of recovery and sedimentation of waterborne *C. parvum* oocysts. To optimize the detection of *C. parvum* oocysts in *C. fluminea* tissue, it is recommended that gill and GI tract samples be screened with IFA (such as

that in the commercially available MERIFLUOR test kit).

L5 ANSWER 5 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1997:111280 BIOSIS

DOCUMENT NUMBER: PREV199799410483

TITLE: Prevalence of *Dientamoeba fragilis* **antibodies** in children and recognition of a 39 kDa immunodominant protein antigen of the organism.

AUTHOR(S): Chan, F. (1); Stewart, N.; Guan, M.; Robb, I.; Fuite, L.; Chan, I.; Diaz-Mitoma, F.; King, J.; MacDonald, N.; MacKenzie, A.

CORPORATE SOURCE: (1) Dep. Lab. Med., Child. Hosp. East. Ont., Ottawa, ON K1H 8L1 Canada

SOURCE: European Journal of Clinical Microbiology & Infectious Diseases, (1996) Vol. 15, No. 12, pp. 950-954.
ISSN: 0934-9723.

DOCUMENT TYPE: Article

LANGUAGE: English

AB *Dientamoeba fragilis*, a common intestinal protozoan parasite in Canada, has been associated with diarrhoea and abdominal pain in some patients. Seroprevalence of this organism has not been reported previously. In the present study sera from three symptomatic patients, 12 age- and sex-matched controls, and 189 randomly selected healthy individuals (age 6 months to 19 years) were tested for **antibodies** against *Dientamoeba fragilis* by an indirect immunofluorescence (IIF) assay. All three symptomatic patients infected with *Dientamoeba fragilis* had positive IIF titres of 80, and all 12 matched controls had positive titres ranging 20 to 160 (geometric mean titre 48). Of the 189 healthy children, 172 (91%) were positive at a serum dilution of 1:10 or higher. The specificity of the IIF assay was reinforced by immunoblotting 20 representative serum samples against *Dientamoeba fragilis*. In all 17 IIF-positive serum samples, a 39 kDa protein band of *Dientamoeba fragilis* was identified, the same band recognized by a mouse monoclonal **antibody** raised in our laboratory. Findings over a five-year period indicate that *Dientamoeba fragilis* was the most common protozoan, followed closely by *Giardia lamblia* and more distantly by *Cryptosporidium parvum*. The high seropositivity of 91% for *Dientamoeba fragilis* compares reasonably well with serologic data obtained by IIF and reported previously for *Giardia lamblia* (85.6%) and *Cryptosporidium parvum* (86%).

L5 ANSWER 6 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1991:5170 BIOSIS

DOCUMENT NUMBER: BA91:5170

TITLE: ENZYME-LINKED IMMUNOASSAY FOR DETECTION OF CRYPTOSPORIDIUM ANTIGENS IN FECAL SPECIMENS.

AUTHOR(S): UNGAR B L P

CORPORATE SOURCE: DEP. PREVENTIVE MEDICINE MEDICINE, UNIFORMED SERVICES UNIVERSITY HEALTH SCIENCES, BETHESDA, MD. 20814-4799.

SOURCE: J CLIN MICROBIOL, (1990) 28 (11), 2491-2495.
CODEN: JCMIDW. ISSN: 0095-1137.

FILE SEGMENT: BA; OLD

LANGUAGE: English

AB *Cryptosporidium* sp. is a ubiquitous 4- to 6-.mu.m protozoan parasite infecting the intestinal tract of humans. It causes mild to fulminant diarrhea in patients, especially immunocompromised persons, and it may be hard to detect by microscopic fecal examination. An indirect, double-**antibody** enzyme-linked immunosorbent assay (ELISA) was developed using specifically produced goat and rabbit antisera to detect *Cryptosporidium* antigens in human feces. Of 62 frozen stools from patients with cryptosporidiosis, as detected by at least two microscopic diagnostic techniques, 51 were positive by ELISA; all ELISA-negative specimens came from patients with fewer than five oocysts per 0.01 ml of concentrated fecal sample examined after modified acid-fast or fluorescent monoclonal **antibody** staining. A total of 182 specimens from persons without *Cryptosporidium* infection were negative by ELISA in 176 instances; 3 ELISA-positive specimens came from patients with cryptosporidiosis

diagnosed earlier. The sensitivity of the assay was 82.3%, and specificity was 96.7%. The predictive value of a positive ELISA was 89.5%, and the predictive value of a negative ELISA was 94.2%. The ELISA was not affected by the presence of eight other intestinal parasites but was sometimes affected by repeated freezing and thawing of fecal specimens. All fecal specimens were heated to 100.degree. C for 2 min to reduce proteolytic enzyme activity, although the necessity of this step needs further evaluation. This first-generation ELISA is a simple, rapid, easily standardized test for *Cryptosporidium* antigens in stool samples which will be useful for diagnosis and for large-scale epidemiologic studies.

L5 ANSWER 7 OF 38 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1985:363933 BIOSIS

DOCUMENT NUMBER: BA80:33925

TITLE: CRYPTOSPORIDIOSIS IN HOSPITAL PERSONNEL EVIDENCE FOR PERSON-TO-PERSON TRANSMISSION.

AUTHOR(S): KOCH K L; PHILLIPS D J; ABER R C; CURRENT W L

CORPORATE SOURCE: MILTON S. HERSHEY MED. CENT., PA. STATE UNIV., P.O. BOX 850, HERSHEY, PA. 17033.

SOURCE: ANN INTERN MED, (1985) 102 (5), 593-596.

CODEN: AIMEAS. ISSN: 0003-4819.

FILE SEGMENT: BA; OLD

LANGUAGE: English

AB An intern responsible for the care of a patient with chronic cryptosporidiosis developed acute diarrhea and serologic evidence of cryptosporidium infection. Sera from 26 hospital personnel exposed to the patient and 18 personnel with no exposure were examined with an indirect immunofluorescent **antibody** procedure for the presence of **antibodies** to *Cryptosporidium*. Eight (31%) exposed personnel (5 nurses, 2 house officers, and 1 student) had positive **antibody** titers (1:10 or more). The frequency of positivity in the nurse-housestaff-student group (8 of 18, 45%) was significantly greater ($P < 0.05$) than that in the attending physicians and respiratory therapists (0 of 8). The former group had significantly more exposure to the patient's feces than did the latter group ($P < 0.01$). Three of 18 control personnel (17%) had positive cryptosporidium **antibody** titers. *Cryptosporidium* may be transmitted from person to person in the hospital environment, and serologic evidence of infection is common among hospital personnel.

L5 ANSWER 8 OF 38 CABA COPYRIGHT 2003 CABI

ACCESSION NUMBER: 2001:96659 CABA

DOCUMENT NUMBER: 20013092796

TITLE: *Cryptosporidium* sp. in newborn calves in a farm of the Rosario de Perija county, Zulia State, Venezuela
Cryptosporidium sp. en becerros neonatos de una finca del Municipio Rosario de Perija, Estado Zulia, Venezuela

AUTHOR: Valera, Z.; Quintero, W.; Villarroel, R.; Hernandez, E.

CORPORATE SOURCE: Facultad de Ciencias Veterinarias, Universidad del Zulia, Apartado 15252, Maracaibo 4005-A, Estado Zulia, Venezuela.

SOURCE: Revista Cientifica, Facultad de Ciencias Veterinarias, Universidad del Zulia, (2001) Vol. 11, No. 3, pp. 213-218. 30 ref.

ISSN: 0798-2259

DOCUMENT TYPE: Journal

LANGUAGE: Spanish

SUMMARY LANGUAGE: English

AB This survey was conducted to establish the presence of *Cryptosporidium* sp. and its association with diarrhoea in newborn calves in a commercial farm in Zulia, Venezuela. Fecal samples were collected directly from the rectum of 57 individually housed calves (2-27-days-old). *Cryptosporidium* sp. oocysts in fecal smears were identified by using a modified Kinyoun technique and subsequently examined

under the light microscope. All oocyst-positive samples were further stained with monoclonal **antibodies** labelled with fluorescein isothiocyanate (FITC-Mabs) and examined by epifluorescence microscopy to confirm the presence of *Cryptosporidium*. 29 (50.8%) of the samples were *Cryptosporidium* positive and the occurrence in newborn calves was associated with the age of the animals ($P < 0.05$). Only 6 (20.6%) of the calves had diarrhoea and no association was found between illness and *Cryptosporidium* occurrence. The results revealed that a high percentage of the calves were infected with *Cryptosporidium*, however, the presence of the parasite was not responsible for the development of diarrhoea.

L5 ANSWER 9 OF 38 CABA COPYRIGHT 2003 CABI

ACCESSION NUMBER: 87:15883 CABA

DOCUMENT NUMBER: 872291272

TITLE: Prevalence of various enteropathogens in the feces of diarrheic and healthy calves

AUTHOR: Rycke, J. de; Bernard, S.; Laporte, J.; Naciri, M.; Popoff, M. R.; Rodolakis, A.; De Rycke, J.

CORPORATE SOURCE: INRA Sta. Path. Reprod., Nouzilly, 37380 Monnaie, France.

SOURCE: Annales de Recherches Veterinaires, (1986) Vol. 17, No. 2, pp. 159-168.

DOCUMENT TYPE: Journal

LANGUAGE: English

SUMMARY LANGUAGE: French

AB The faeces of dairy calves reared in a restricted geographical area of France (north-western Indre-et-Loire) were examined for the presence of various enteropathogens during the winter 1983-1984. Two surveys were carried out: a case-control study including 32 diarrhoeic calves and 21 healthy calves on 53 different farms, and a separate study on nine diarrhoeic calves on another farm. Specific methods were used to detect: *Escherichia coli* K99 and *E. coli* lethal for mice, *Salmonella* species, *Yersinia enterocolitica*, *Campylobacter jejuni*, enterotoxigenic *Clostridium perfringens*, *Chlamydia psittaci*, rotaviruses, coronaviruses, *Cryptosporidium*. In the case-control survey, no enterotoxigenic *E. coli* (K99+) was detected in either group of calves. Four agents were more often detected in diarrhoeic calves than in healthy calves: rotavirus (12/32 vs 1/21), lethal *E. coli* (6/32 vs 1/21), *Cryptosporidium* (2/32 vs 0/21) and *Salmonella typhimurium* (1/32 vs 0/21). One at least of these four agents was present in 16 diarrhoeic calves (50%) but in only 2 healthy calves (10%). *Campylobacter jejuni* and *C. perfringens* enterotoxins were found in about 20% and 10% of all calves, respectively. Coronavirus-like particles were significantly associated with healthy calves (7/32 vs 11/21). In the other study, all the main categories of enteropathogens were detected on the same farm throughout the period of observation, with the exception of enterotoxigenic *E. coli* each calf taken individually was rarely shedding more than two agents at a time. In addition, specific **antibodies** against *C. perfringens* enterotoxin, as determined by ELISA, were present in the serum of all the calves examined in both surveys. This study confirms the primary role of rotavirus and **Cryptosporidium** as agents of diarrhoea in calves under three weeks of age. It also suggests the possible participation of *E. coli* strains that are lethal for mice and underlines the potential hazard for human health of bovine reservoirs of *Campylobacter jejuni* and enterotoxigenic *C. perfringens*.

L5 ANSWER 10 OF 38 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:32137 CAPLUS

TITLE: Occurrence of *Cryptosporidium* and *Giardia* in wild ducks along the rio grande river valley in southern New Mexico

AUTHOR(S): Kuhn, Ryan C.; Rock, Channah M.; Oshima, Kevin H.

CORPORATE SOURCE: Department of Biology, New Mexico State University, Las Cruces, NM, 88003, USA

SOURCE: Applied and Environmental Microbiology (2002), 68(1), 161-165

CODEN: AEMIDF; ISSN: 0099-2240

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Fecal samples were taken from wild ducks on the lower Rio Grande River around Las Cruces, N. Mex., from Sept. 2000 to Jan. 2001. *Giardia* cysts and *Cryptosporidium* oocysts were purified from 69 samples by sucrose enrichment followed by cesium chloride (CsCl) gradient centrifugation and were viewed via fluorescent-**antibody** (FA) staining. For some samples, recovered cysts and oocysts were further screened via PCR to det. the presence of *Giardia lamblia* and *Cryptosporidium parvum*. The results of this study indicate that 49% of the ducks were carriers of *Cryptosporidium*, and the *Cryptosporidium* oocyst concns. ranged from 0 to 2,182 oocysts per g of feces (mean std. deviation, 47.53 270.3 oocysts per g); also, 28% of the ducks were pos. for *Giardia*, and the *Giardia* cyst concns. ranged from 0 to 29,293 cysts per g of feces (mean std. deviation, 436 3,525.4 cysts per g). Of the 69 samples, only 14 had (oo)cyst concns. that were above the PCR detection limit. Samples did test pos. for *Cryptosporidium* sp. However, *C. parvum* and *G. lamblia* were not detected in any of the 14 samples tested by PCR. Ducks on their southern migration through southern New Mexico were pos. for *Cryptosporidium* and *Giardia* as detd. by FA staining, but *C. parvum* and *G. lamblia* were not detected.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 38 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:651487 CAPLUS

DOCUMENT NUMBER: 131:335736

TITLE: CD40-CD40 ligand interactions augment survival of normal mice, but not CD40 ligand knockout mice, challenged orally with *Salmonella dublin*

AUTHOR(S): Marriott, Ian; Thomas, Elaine K.; Bost, Kenneth L.

CORPORATE SOURCE: Department of Biology, University of North Carolina at Charlotte, Charlotte, NC, 28223, USA

SOURCE: Infection and Immunity (1999), 67(10), 5253-5257
CODEN: INFIBR; ISSN: 0019-9567

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Interactions between CD40 expressed on macrophages and CD40 ligand expressed on T lymphocytes can be an important signal for optimal macrophage activation. Previous studies have demonstrated that the optimal response against certain intracellular pathogens (e.g., *Cryptosporidium* and *Leishmania* spp.) by macrophages requires CD40-CD40 ligand interactions. However, this finding is not universal, since two recent reports utilizing CD40 knockout mice have shown no such contribution to the protective immune response against *Mycobacterium tuberculosis* or *Histoplasma capsulatum*. We demonstrate here that CD40-CD40 ligand interactions are significant events in the protective response against the intracellular pathogen *Salmonella dublin* in normal mice but not for animals genetically deficient in CD40 ligand expression. Treating BALB/c mice exogenously with a CD40 agonist (i.e., sol. trimeric CD40 ligand) increased resistance against a lethal, orally administered dose of *S. dublin*. Conversely, in vivo administration of a monoclonal **antibody** against CD40 ligand to block endogenous CD40-CD40 ligand interactions resulted in a decreased resistance to salmonellosis. In contrast, CD40 ligand knockout mice demonstrated no increased susceptibility to salmonellosis. In vitro treatment of *Salmonella*-infected macrophages from BALB/c mice with sol. trimeric CD40 ligand resulted in an elevated prodn. of interleukin-12p70 by these cells, suggesting a mechanism whereby CD40-CD40 ligand interactions might enhance protective immune responses to this pathogen. Taken together, these studies strongly suggest that CD40-CD40 ligand interactions in normal mice play an important protective role in immune responses against the gram-neg., intracellular pathogen *S. dublin*.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS

L5 ANSWER 12 OF 38 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:315585 CAPLUS
 DOCUMENT NUMBER: 127:13850
 TITLE: An assay combining cell culture with reverse transcriptase PCR to detect and determine the infectivity of waterborne *Cryptosporidium parvum*
 AUTHOR(S): Rochelle, Paul A.; Ferguson, Donna M.; Handojo, Troy J.; De Leon, Ricardo; Stewart, Mic H.; Wolfe, Roy L.
 CORPORATE SOURCE: Water Quality Laboratory, Metropolitan Water District Southern California, La Verne, CA, 91750-3399, USA
 SOURCE: Applied and Environmental Microbiology (1997), 63(5), 2029-2037
 CODEN: AEMIDF; ISSN: 0099-2240
 PUBLISHER: American Society for Microbiology
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The presence of *Cryptosporidium* in drinking water supplies is a significant problem faced by the water industry. Although a variety of methods exist for the detection of waterborne oocysts, water utilities currently have no way of assessing the infectivity of detected oocysts and consequently are unable to accurately det. the risks posed to public health by waterborne *Cryptosporidium*. In this paper, the development of an infectivity assay for waterborne *Cryptosporidium parvum* is described. Oocysts were inoculated onto monolayers of Caco-2 cells and grown in microscope slides, and infections were detected by *C. parvum* specific reverse transcriptase PCR of extd. mRNA, targeting the heat shock protein 70 (hsp70) gene. A single infectious oocyst was detected by this exptl. procedure. The use of concd. samples obtained from 250 L of finished water had no observable effect on the integrity of cell monolayers or on the infectivity of oocysts seeded into the conc. Intracellular developmental stages of the parasite were also detected by using fluorescently labeled **antibodies**. One pair of PCR primers targeting the hsp70 gene was specific for *C. parvum*, while a second pair recognized all species of *Cryptosporidium* tested. The *C. parvum*-specific primers amplified DNA from 1 to 10 oocysts used to seed 65 to 100 L of concd. environmental water samples and were compatible with multiplex PCR for the simultaneous detection of *C. parvum* and *Giardia lamblia*. This paper confirms the utility of PCR for the detection of waterborne *C. parvum* and, most importantly, demonstrates the potential of an in vitro infectivity assay.

L5 ANSWER 13 OF 38 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:526652 CAPLUS
 DOCUMENT NUMBER: 117:126652
 TITLE: Characterization of a *Cryptosporidium parvum* sporozoite glycoprotein
 AUTHOR(S): Petersen, Carolyn; Gut, Jiri; Nelson, Richard G.; Leech, James H.
 CORPORATE SOURCE: Dep. Med., San Francisco Gen. Hosp., San Francisco, CA, 94110, USA
 SOURCE: Journal of Protozoology (1991), 38(6), 20S-21S
 CODEN: JPROAR; ISSN: 0022-3921
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Polyclonal and monoclonal **antibodies** directed against *Cryptosporidium* oocysts or sporozoites were developed to identify and characterize sporozoite pellicle and apical complex antigens. A very large glycoprotein of *Cryptosporidium* sporozoites was identified by 3 monoclonal **antibodies** that also reacted with intracellular merozoites. The glycoprotein was also identified by polyclonal **antibodies** that were affinity-purified on nitrocellulose-bound recombinant proteins expressed by 4 .lambda.gtl genomic clones.

L5 ANSWER 14 OF 38 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.

ACCESSION NUMBER: 2002013035 EMBASE
TITLE: Occurrence of Cryptosporidium and Giardia in wild ducks along the Rio Grande River valley in Southern New Mexico.
AUTHOR: Kuhn R.C.; Rock C.M.; Oshima K.H.
CORPORATE SOURCE: K.H. Oshima, Department of Biology, New Mexico State University, P.O. Box 30001, Las Cruces, NM 88003, United States. koshima@nmsu.edu
SOURCE: Applied and Environmental Microbiology, (2002) 68/1 (161-165).
Refs: 39

ISSN: 0099-2240 CODEN: AEMIDF
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Fecal samples were taken from wild ducks on the lower Rio Grande River around Las Cruces, N. Mex., from September 2000 to January 2001. Giardia cysts and Cryptosporidium oocysts were purified from 69 samples by sucrose enrichment followed by cesium chloride (CsCl) gradient centrifugation and were viewed via fluorescent-**antibody** (FA) staining. For some samples, recovered cysts and oocysts were further screened via PCR to determine the presence of Giardia lamblia and **Cryptosporidium** parvum. The results of this study indicate that 49% of the ducks were carriers of Cryptosporidium, and the Cryptosporidium oocyst concentrations ranged from 0 to 2,182 oocysts per g of feces (mean \pm standard deviation, 47.53 \pm 270.3 oocysts per g); also, 28% of the ducks were positive for Giardia, and the Giardia cyst concentrations ranged from 0 to 29,293 cysts per g of feces (mean \pm standard deviation, 436 \pm 3,525.4 cysts per g). Of the 69 samples, only 14 had (oo)cyst concentrations that were above the PCR detection limit. Samples did test positive for Cryptosporidium sp. However, C. parvum and G. lamblia were not detected in any of the 14 samples tested by PCR. Ducks on their southern migration through southern New Mexico were positive for Cryptosporidium and Giardia as determined by FA staining, but C. parvum and G. lamblia were not detected.

L5 ANSWER 15 OF 38 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.

ACCESSION NUMBER: 1999338048 EMBASE
TITLE: CD40-CD40 ligand interactions augment survival of normal mice, but not CD40 ligand knockout mice, challenged orally with Salmonella dublin.
AUTHOR: Marriott I.; Thomas E.K.; Bost K.L.
CORPORATE SOURCE: K.L. Bost, Department of Biology, University of North Carolina, 9201 University City Blvd., Charlotte, NC 28223, United States. klbost@email.uncc.edu
SOURCE: Infection and Immunity, (1999) 67/10 (5253-5257).
Refs: 33

ISSN: 0019-9567 CODEN: INFIBR
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 026 Immunology, Serology and Transplantation
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Interactions between CD40 expressed on macrophages and CD40 ligand expressed on T lymphocytes can be an important signal for optimal macrophage activation. Previous studies have demonstrated that the optimal response against certain intracellular pathogens (e.g., **Cryptosporidium** and Leishmania spp.) by macrophages requires CD40-CD40 ligand interactions. However, this finding is not universal, since two recent reports utilizing CD40 knockout mice have shown no such contribution to the protective immune response against Mycobacterium tuberculosis or Histoplasma capsulatum. We demonstrate here that CD40-CD40 ligand interactions are significant events in the protective response against the intracellular pathogen Salmonella dublin in normal mice but not for animals genetically deficient in CD40 ligand expression. Treating

BALB/c mice exogenously with a CD40 agonist (i.e., soluble trimeric CD40 ligand) increased resistance against a lethal, orally administered dose of *S. dublin*. Conversely, in vivo administration of a monoclonal **antibody** against CD40 ligand to block endogenous CD40-CD40 ligand interactions resulted in a decreased resistance to salmonellosis. In contrast, CD40 ligand knockout mice demonstrated no increased susceptibility to salmonellosis. In vitro treatment of *Salmonella*-infected macrophages from BALB/c mice with soluble trimeric CD40 ligand resulted in an elevated production of interleukin 12p70 by these cells, suggesting a mechanism whereby CD40-CD40 ligand interactions might enhance protective immune responses to this pathogen. Taken together, these studies strongly suggest that CD40-CD40 ligand interactions in normal mice play an important protective role in immune responses against the gram-negative, intracellular pathogen *S. dublin*.

L5 ANSWER 16 OF 38 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.

ACCESSION NUMBER: 91126176 EMBASE

DOCUMENT NUMBER: 1991126176

TITLE: Cryptosporidium infection in acquired immunodeficiency syndrome: Not always a poor prognosis.

AUTHOR: Saltzberg D.M.; Kotloff K.L.; Newman J.L.; Fastiggi R.

CORPORATE SOURCE: 660 Kenilworth Drive, Baltimore, MD 21204, United States

SOURCE: Journal of Clinical Gastroenterology, (1991) 13/1 (94-97).

ISSN: 0192-0790 CODEN: JCGADC

COUNTRY: United States

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 004 Microbiology

047 Virology

048 Gastroenterology

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Chronic diarrhea and malabsorption accompanied by simultaneous infection with the protozoa *Giardia lamblia* and *Cryptosporidium* occurred in a 22-year-old homosexual man with **antibody** to human immunodeficiency virus (HIV). Small bowel biopsy demonstrated total villous atrophy and marked mononuclear infiltration in the lamina propria simulating celiac disease. Treatment with metronidazole resulted in resolution of diarrhea, clearance of parasites, and marked improvement in small bowel histology. Although diarrhea and malabsorption in immunocompromised patients with cryptosporidiosis are regarded as ominous, our patient remained disease free for the next 3 years. Thus, infection with **Cryptosporidium** in patients with HIV does not always lead to intractable diarrhea or death.

L5 ANSWER 17 OF 38 LIFESCI COPYRIGHT 2003 CSA

ACCESSION NUMBER: 2002:42568 LIFESCI

TITLE: Occurrence of *Cryptosporidium* and *Giardia* in Wild Ducks Along the Rio Grande River Valley in Southern New Mexico

AUTHOR: Kuhn, R.C.; Rock, C.M.; Oshima, K.H.*

CORPORATE SOURCE: Department of Biology, New Mexico State University, Dept. 3AF, P.O. Box 30001, Las Cruces, NM 88003.; E-mail: koshima@nmsu.edu

SOURCE: Applied and Environmental Microbiology [Appl. Environ. Microbiol.], (20020100) vol. 68, no. 1, pp. 161-165. ISSN: 0099-2240.

DOCUMENT TYPE: Journal

FILE SEGMENT: K; D

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Fecal samples were taken from wild ducks on the lower Rio Grande River around Las Cruces, N. Mex., from September 2000 to January 2001. *Giardia* cysts and *Cryptosporidium* oocysts were purified from 69 samples by sucrose enrichment followed by cesium chloride (CsCl) gradient centrifugation and were viewed via fluorescent-**antibody** (FA) staining. For some samples, recovered cysts and oocysts were further screened via PCR to determine the presence of *Giardia lamblia* and **Cryptosporidium**

parvum. The results of this study indicate that 49% of the ducks were carriers of *Cryptosporidium*, and the *Cryptosporidium* oocyst concentrations ranged from 0 to 2,182 oocysts per g of feces (mean plus or minus standard deviation, 47.53 plus or minus 270.3 oocysts per g); also, 28% of the ducks were positive for *Giardia*, and the *Giardia* cyst concentrations ranged from 0 to 29,293 cysts per g of feces (mean plus or minus standard deviation, 436 plus or minus 3,525.4 cysts per g). Of the 69 samples, only 14 had (oo)cyst concentrations that were above the PCR detection limit. Samples did test positive for *Cryptosporidium* sp. However, *C. parvum* and *G. lamblia* were not detected in any of the 14 samples tested by PCR. Ducks on their southern migration through southern New Mexico were positive for *Cryptosporidium* and *Giardia* as determined by FA staining, but *C. parvum* and *G. lamblia* were not detected.

L5 ANSWER 18 OF 38 LIFESCI COPYRIGHT 2003 CSA

ACCESSION NUMBER: 1999:112995 LIFESCI

TITLE: CD40-CD40 ligand interactions augment survival of normal mice, but not CD40 ligand knockout mice, challenged orally with *Salmonella dublin*

AUTHOR: Marriott, I.; Thomas, E.K.; Bost, K.L.*

CORPORATE SOURCE: Department of Biology, University of North Carolina at Charlotte, 9201 University City Blvd., Charlotte, NC 28223, USA; E-mail: klbost@email.uncc.edu

SOURCE: Infection and Immunity [Infect. Immun.], (1999)1000 vol. 67, no. 10, pp. 5253-5257.
ISSN: 0019-9567.

DOCUMENT TYPE: Journal

FILE SEGMENT: J

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Interactions between CD40 expressed on macrophages and CD40 ligand expressed on T lymphocytes can be an important signal for optimal macrophage activation. Previous studies have demonstrated that the optimal response against certain intracellular pathogens (e.g., *Cryptosporidium* and *Leishmania* spp.) by macrophages requires CD40-CD40 ligand interactions. However, this finding is not universal, since two recent reports utilizing CD40 knockout mice have shown no such contribution to the protective immune response against *Mycobacterium tuberculosis* or *Histoplasma capsulatum*. We demonstrate here that CD40-CD40 ligand interactions are significant events in the protective response against the intracellular pathogen *Salmonella dublin* in normal mice but not for animals genetically deficient in CD40 ligand expression. Treating BALB/c mice exogenously with a CD40 agonist (i.e., soluble trimeric CD40 ligand) increased resistance against a lethal, orally administered dose of *S. dublin*. Conversely, in vivo administration of a monoclonal **antibody** against CD40 ligand to block endogenous CD40-CD40 ligand interactions resulted in a decreased resistance to salmonellosis. In contrast, CD40 ligand knockout mice demonstrated no increased susceptibility to salmonellosis. In vitro treatment of *Salmonella*-infected macrophages from BALB/c mice with soluble trimeric CD40 ligand resulted in an elevated production of interleukin 12p70 by these cells, suggesting a mechanism whereby CD40-CD40 ligand interactions might enhance protective immune responses to this pathogen. Taken together, these studies strongly suggest that CD40-CD40 ligand interactions in normal mice play an important protective role in immune responses against the gram-negative, intracellular pathogen *S. dublin*.

L5 ANSWER 19 OF 38 LIFESCI COPYRIGHT 2003 CSA

ACCESSION NUMBER: 97:73211 LIFESCI

TITLE: Diagnosis of subclinical cryptosporidiosis in captive snakes based on stomach lavage and cloacal sampling

AUTHOR: Graczyk, T.K.; Owens, R.; Cranfield, M.R.

CORPORATE SOURCE: Johns Hopkins Univ., Sch. Hyg. and Public Health, Dep. Mol. Microbiol. and Immun., 615 North Wolfe St., Baltimore, MD 21205, USA

SOURCE: VET. PARASITOL., (1996) vol. 67, no. 3-4, pp. 143-151.

ISSN: 0304-4017.

DOCUMENT TYPE: Journal
FILE SEGMENT: K
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The applicability of stomach lavage and cloacal swab techniques for diagnosis of subclinical cryptosporidiosis were tested in eight captive snakes subclinically infected with *Cryptosporidium serpentis*. Two feeding regimes were employed. The snakes were first fed 7 days prior to stomach and cloaca sampling, and then 3 days prior to sampling, and the oocysts were detected by fluorescein labeled monoclonal **antibody** (mAb) and by acid-fast stained (AFS) direct wet smear (DWS). The overall sensitivity of AFS DWS was 95% for stomach samples and 57% for cloacal samples, with false-negativity of 5% and 43%, respectively. A significant relationship ($P < 0.01$) was found between stomach and cloacal samples when mAb were used for oocyst detection. Stomach sampling was diagnostically superior to cloacal sampling for identifying snake subclinical cryptosporidiosis. Based on gastric aspirates, cryptosporidial infection was diagnosed in all eight animals, and only in two or four snakes when cloacal swab material was processed by AFS or by mAb, respectively. Feeding snakes 3 days prior to sampling facilitated diagnosis based on stomach samples; however, it did not improve diagnosis when cloacal samples were used. The fraction of oocyst-positive stomach samples was significantly higher ($P < 0.05$) for snakes fed 3 days prior to gastric lavage when compared with the fraction of positive samples of snakes fed 7 days prior to lavage. If subclinical cryptosporidiosis is suspected in a non-eating snake patient, force-feeding and stomach lavage, 3 days after the meal, is recommended.

L5 ANSWER 20 OF 38 LIFESCI COPYRIGHT 2003 CSA

ACCESSION NUMBER: 88:549 LIFESCI
TITLE: Lacteal immunity to enteric cryptosporidiosis in mice:
Immune dams do not protect their suckling pups.
AUTHOR: Moon, H.W.; Woodmansee, D.B.; Harp, J.A.; Abel, S.; Ungar, B.L.P.
CORPORATE SOURCE: Natl. Anim. Dis. Cent., Agric. Res. Serv., U.S. Dep.
Agric., Ames, IA 50010, USA
SOURCE: INFECT. IMMUN., (1988) vol. 56, no. 3, pp. 649-653.
DOCUMENT TYPE: Journal
FILE SEGMENT: K; F
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The susceptibilities of passively immunized principal and nonimmunized control suckling mice to orogastric challenge with *Cryptosporidium parvum* oocysts were compared. Principals were suckled by dams that had recovered from *C. parvum* infection. Controls were suckled by dams reared free of *C. parvum* infection. Principals and controls were equally susceptible to challenge. Principals were susceptible even when their dams were hyperimmunized by oral and parenteral booster inoculations with *C. parvum* oocysts. Immune dams produced serum **antibody** against *C. parvum*, while nonimmune dams did not. Anti-cryptosporidia immunoglobulin G (IgG) and IgA were demonstrated in whey extracted from the stomachs of principals that had suckled immune dams but not in whey extracted from the stomachs of controls. It was concluded that passive lacteal immunity is not an efficient means of protection against cryptosporidiosis in mice. As in other coccidian infections, protective immunity against cryptosporidiosis may depend more on immune cells than on **antibody**.

L5 ANSWER 21 OF 38 MEDLINE

ACCESSION NUMBER: 2002050393 MEDLINE
DOCUMENT NUMBER: 21633811 PubMed ID: 11772622
TITLE: Occurrence of *Cryptosporidium* and *Giardia* in wild ducks along the Rio Grande River valley in southern New Mexico.
AUTHOR: Kuhn Ryan C; Rock Channah M; Oshima Kevin H
CORPORATE SOURCE: Department of Biology, New Mexico State University, Las

SOURCE: Cruces, New Mexico 88003, USA.
 APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (2002 Jan) 68 (1)
 161-5.
 Journal code: 7605801. ISSN: 0099-2240.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200205
 ENTRY DATE: Entered STN: 20020125
 Last Updated on STN: 20020515
 Entered Medline: 20020514

AB Fecal samples were taken from wild ducks on the lower Rio Grande River around Las Cruces, N. Mex., from September 2000 to January 2001. *Giardia* cysts and *Cryptosporidium* oocysts were purified from 69 samples by sucrose enrichment followed by cesium chloride (CsCl) gradient centrifugation and were viewed via fluorescent-**antibody** (FA) staining. For some samples, recovered cysts and oocysts were further screened via PCR to determine the presence of *Giardia lamblia* and ***Cryptosporidium*** *parvum*. The results of this study indicate that 49% of the ducks were carriers of *Cryptosporidium*, and the *Cryptosporidium* oocyst concentrations ranged from 0 to 2,182 oocysts per g of feces (mean +/- standard deviation, 47.53 +/- 270.3 oocysts per g); also, 28% of the ducks were positive for *Giardia*, and the *Giardia* cyst concentrations ranged from 0 to 29,293 cysts per g of feces (mean +/- standard deviation, 436 +/- 3,525.4 cysts per g). Of the 69 samples, only 14 had (oo)cyst concentrations that were above the PCR detection limit. Samples did test positive for *Cryptosporidium* sp. However, *C. parvum* and *G. lamblia* were not detected in any of the 14 samples tested by PCR. Ducks on their southern migration through southern New Mexico were positive for *Cryptosporidium* and *Giardia* as determined by FA staining, but *C. parvum* and *G. lamblia* were not detected.

L5 ANSWER 22 OF 38 MEDLINE

ACCESSION NUMBER: 1999426821 MEDLINE
 DOCUMENT NUMBER: 99426821 PubMed ID: 10496903
 TITLE: CD40-CD40 ligand interactions augment survival of normal mice, but not CD40 ligand knockout mice, challenged orally with *Salmonella dublin*.
 AUTHOR: Marriott I; Thomas E K; Bost K L
 CORPORATE SOURCE: Department of Biology, University of North Carolina at Charlotte, Charlotte, North Carolina 28223, USA.
 CONTRACT NUMBER: AI32976 (NIAID)
 SOURCE: INFECTION AND IMMUNITY, (1999 Oct) 67 (10) 5253-7.
 Journal code: 0246127. ISSN: 0019-9567.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199910
 ENTRY DATE: Entered STN: 19991026
 Last Updated on STN: 19991026
 Entered Medline: 19991014

AB Interactions between CD40 expressed on macrophages and CD40 ligand expressed on T lymphocytes can be an important signal for optimal macrophage activation. Previous studies have demonstrated that the optimal response against certain intracellular pathogens (e.g., ***Cryptosporidium*** and *Leishmania* spp.) by macrophages requires CD40-CD40 ligand interactions. However, this finding is not universal, since two recent reports utilizing CD40 knockout mice have shown no such contribution to the protective immune response against *Mycobacterium tuberculosis* or *Histoplasma capsulatum*. We demonstrate here that CD40-CD40 ligand interactions are significant events in the protective response against the intracellular pathogen *Salmonella dublin* in normal mice but not for animals genetically deficient in CD40 ligand expression. Treating BALB/c mice exogenously with a CD40 agonist (i.e., soluble trimeric CD40

ligand) increased resistance against a lethal, orally administered dose of *S. dublin*. Conversely, in vivo administration of a monoclonal **antibody** against CD40 ligand to block endogenous CD40-CD40 ligand interactions resulted in a decreased resistance to salmonellosis. In contrast, CD40 ligand knockout mice demonstrated no increased susceptibility to salmonellosis. In vitro treatment of *Salmonella*-infected macrophages from BALB/c mice with soluble trimeric CD40 ligand resulted in an elevated production of interleukin 12p70 by these cells, suggesting a mechanism whereby CD40-CD40 ligand interactions might enhance protective immune responses to this pathogen. Taken together, these studies strongly suggest that CD40-CD40 ligand interactions in normal mice play an important protective role in immune responses against the gram-negative, intracellular pathogen *S. dublin*.

L5 ANSWER 23 OF 38 MEDLINE
 ACCESSION NUMBER: 77066605 MEDLINE
 DOCUMENT NUMBER: 77066605 PubMed ID: 793692
 TITLE: Pathological and microbiological observations made on spontaneous cases of acute neonatal calf diarrhea.
 AUTHOR: Morin M; Lariviere S; Lallier R
 SOURCE: CANADIAN JOURNAL OF COMPARATIVE MEDICINE, (1976 Jul) 40 (3) 228-40.
 Journal code: 0151747. ISSN: 0008-4050.
 PUB. COUNTRY: Canada
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197702
 ENTRY DATE: Entered STN: 19900313
 Last Updated on STN: 19900313
 Entered Medline: 19770224

AB The purpose of this report is to describe clinical signs, gross and microscopic lesions, bacteriological and immunofluorescence observations made on spontaneous cases of acute neonatal calf diarrhea (NCD) in dairy and beef herds. The following diagnostic tools were used: 1) direct smears of intestinal content, 2) *Escherichia coli* counts, 3) aerobic bacterial cultures of the small intestine and other organs (The O serogroup and the enterotoxigenicity of the *E. coli* isolated was determined), 4) detection of the two Nebraska NCD viruses (reo-like and corona-like) by the fluorescent **antibody** technique and 5) histological examination on different segments of the digestive tract. The following etiological diagnoses were suggested after post mortem examination of 55 cases of NDC (34 were submitted alive): reo-like virus only (1), reo-like virus + *E. coli* (4), reo-like virus + cryptosporidium (2), reo- + corona-like viruses (5), reo- + corona-like viruses + cryptosporidium (3), reo- + corona-like viruses + infectious bovine rhinotracheitis virus (1), coronavirus-like agent only (2), coronavirus-like agent + mycotic abomasitis (1), coronavirus-like agent + **cryptosporidium** (1), *E. coli* only (6), cryptosporidium only (5), mycotic abomasitis (3), mycotic rumenitis + reticulitis (1) and undetermined (20). Most of the calves in the last group were submitted dead.

L5 ANSWER 24 OF 38 SCISEARCH COPYRIGHT 2003 ISI (R)
 ACCESSION NUMBER: 2002:47887 SCISEARCH
 THE GENUINE ARTICLE: 508JM
 TITLE: Occurrence of *Cryptosporidium* and *Giardia* in wild ducks along the Rio Grande River valley in southern New Mexico
 AUTHOR: Kuhn R C; Rock C M; Oshima K H (Reprint)
 CORPORATE SOURCE: New Mexico State Univ, Dept Biol, Dept 3AF, POB 30001, Las Cruces, NM 88003 USA (Reprint); New Mexico State Univ, Dept Biol, Las Cruces, NM 88003 USA
 COUNTRY OF AUTHOR: USA
 SOURCE: APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (JAN 2002) Vol. 68, No. 1, pp. 161-165.
 Publisher: AMER SOC MICROBIOLOGY, 1752 N ST NW, WASHINGTON, DC 20036-2904 USA.

ISSN: 0099-2240.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 39

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Fecal samples were taken from wild ducks on the lower Rio Grande River around Las Cruces, N. Mex., from September 2000 to January 2001. *Giardia* cysts and *Cryptosporidium* oocysts were purified from 69 samples by sucrose enrichment followed by cesium chloride (CsCl) gradient centrifugation and were viewed via fluorescent-**antibody** (FA) staining. For some samples, recovered cysts and oocysts were further screened via PCR to determine the presence of *Giardia lamblia* and *Cryptosporidium parvum*. The results of this study indicate that 49% of the ducks were carriers of *Cryptosporidium*, and the *Cryptosporidium* oocyst concentrations ranged from 0 to 2,182 oocysts per g of feces (mean +/- standard deviation, 47.53 +/- 270.3 oocysts per g); also, 28% of the ducks were positive for *Giardia*, and the *Giardia* cyst concentrations ranged from 0 to 29,293 cysts per g of feces (mean standard deviation, 436 +/- 3,525.4 cysts per g). Of the 69 samples, only 14 had (oo)cyst concentrations that were above the PCR detection limit. Samples did test positive for *Cryptosporidium* sp. However, *C. parvum* and *G. lamblia* were not detected in any of the 14 samples tested by PCR. Ducks on their southern migration through southern New Mexico were positive for *Cryptosporidium* and *Giardia* as determined by FA staining, but *C. parvum* and *G. lamblia* were not detected.

L5 ANSWER 25 OF 38 SCISEARCH COPYRIGHT 2003 ISI (R)
ACCESSION NUMBER: 2000:446777 SCISEARCH
THE GENUINE ARTICLE: 322KH
TITLE: First findings of *Cryptosporidium* and *Giardia* in California sea lions (*Zalophus californianus*)
AUTHOR: Deng M Q; Peterson R P; Cliver D O (Reprint)
CORPORATE SOURCE: UNIV CALIF DAVIS, SCH VET MED, DEPT POPULAT HLTH & REPROD, 1 SHIELDS AVE, DAVIS, CA 95616 (Reprint); UNIV CALIF DAVIS, SCH VET MED, DEPT POPULAT HLTH & REPROD, DAVIS, CA 95616
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF PARASITOLOGY, (JUN 2000) Vol. 86, No. 3, pp. 490-494.
Publisher: AMER SOC PARASITOLOGISTS, 810 EAST 10TH STREET, LAWRENCE, KS 66044.
ISSN: 0022-3395.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE; AGRI
LANGUAGE: English
REFERENCE COUNT: 16

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB We report the detection and identification of *Cryptosporidium* and *Giardia* from 1 of 3 species of pinnipeds. Fecal samples were collected from Pacific harbor seal (*Phoca vitulina richardsi*), northern elephant seal (*Mirounga angustirostris*), and California sea lion (*Zalophus californianus*) in the northern California coastal area. By means of fluorescently labeled monoclonal **antibodies**, *Cryptosporidium* oocysts were detected in 3 samples from California sea lions, 1 of which also contained *Giardia* cysts. Oocysts of *Cryptosporidium* and cysts of *Giardia* were morphologically indistinguishable from oocysts of *C. parvum* and cysts of *G. duodenalis* from other animal origins. Oocysts and cysts were then purified using immunomagnetic separation techniques and identified by polymerase chain reaction (PCR), from which species-specific products were obtained. Sequence analysis revealed that the 452-bp and 358-bp PCR products of *Cryptosporidium* isolated from California sea lion had identities of 98% with sequences of their template fragments of *C. parvum* obtained from infected calves. Based on morphological, immunological, and genetic characterization, the isolates were identified as *C. parvum* and *G. duodenalis*, respectively. The findings suggested that California sea lions could serve as reservoirs in the environmental

transmission of *Cryptosporidium* and *Giardia*.

L5 ANSWER 26 OF 38 SCISEARCH COPYRIGHT 2003 ISI (R)
ACCESSION NUMBER: 1999:750325 SCISEARCH
THE GENUINE ARTICLE: 240ET
TITLE: CD40-CD40 ligand interactions augment survival of normal mice, but not CD40 ligand knockout mice, challenged orally with *Salmonella dublin*
AUTHOR: Marriott I; Thomas E K; Bost K L (Reprint)
CORPORATE SOURCE: UNIV N CAROLINA, DEPT BIOL, 9201 UNIV CITY BLVD, CHARLOTTE, NC 28223 (Reprint); UNIV N CAROLINA, DEPT BIOL, CHARLOTTE, NC 28223; IMMUNEX RES & DEV CORP, SEATTLE, WA 98101
COUNTRY OF AUTHOR: USA
SOURCE: INFECTION AND IMMUNITY, (OCT 1999) Vol. 67, No. 10, pp. 5253-5257.
Publisher: AMER SOC MICROBIOLOGY, 1325 MASSACHUSETTS AVENUE, NW, WASHINGTON, DC 20005-4171.
ISSN: 0019-9567.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 33

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Interactions between CD40 expressed on macrophages and CD40 ligand expressed on T lymphocytes can be an important signal for optimal macrophage activation. Previous studies have demonstrated that the optimal response against certain intracellular pathogens (e.g., *Cryptosporidium* and *Leishmania* spp.) by macrophages requires CD40-CD40 ligand interactions. However, this finding is not universal, since two recent reports utilizing CD40 knockout mice have shown no such contribution to the protective immune response against *Mycobacterium tuberculosis* or *Histoplasma capsulatum*. We demonstrate here that CD40-CD40 ligand interactions are significant events in the protective response against the intracellular pathogen *Salmonella dublin* in normal mice but not for animals genetically deficient in CD40 ligand expression. Treating BALB/c mice exogenously with a CD40 agonist (i.e., soluble trimeric CD40 ligand) increased resistance against a lethal, orally administered dose of *S. dublin*. Conversely, in vivo administration of a monoclonal antibody against CD40 ligand to block endogenous CD40-CD40 ligand interactions resulted in a decreased resistance to salmonellosis. In contrast, CD40 ligand knockout mice demonstrated no increased susceptibility to salmonellosis. In vitro treatment of *Salmonella*-infected macrophages from BALB/c mice with soluble trimeric CD40 ligand resulted in an elevated production of interleukin 12p70 by these cells, suggesting a mechanism whereby CD40-CD40 ligand interactions might enhance protective immune responses to this pathogen. Taken together, these studies strongly suggest that CD40-CD40 ligand interactions in normal mice play an important protective role in immune responses against the gram-negative, intracellular pathogen *S. dublin*.

L5 ANSWER 27 OF 38 SCISEARCH COPYRIGHT 2003 ISI (R)
ACCESSION NUMBER: 97:689837 SCISEARCH
THE GENUINE ARTICLE: XV495
TITLE: Unique cultural methods used to detect viable *Cryptosporidium parvum* oocysts in environmental samples
AUTHOR: Slifko T R (Reprint); Friedman D E; Rose J B; Upton S J; Jakubowski W
CORPORATE SOURCE: UNIV S FLORIDA, ST PETERSBURG, FL 33701 (Reprint); KANSAS STATE UNIV, MANHATTAN, KS 66506; US EPA, CINCINNATI, OH 45268
COUNTRY OF AUTHOR: USA
SOURCE: WATER SCIENCE AND TECHNOLOGY, (AUG 1997) Vol. 35, No. 11-12, pp. 363-368.
Publisher: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD, ENGLAND OX5 1GB.

ISSN: 0273-1223.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: AGRI
LANGUAGE: English
REFERENCE COUNT: 12

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB **Cryptosporidium** parvum is an infectious enteric protozoan parasite that causes waterborne disease, severe gastroenteritis and is associated with high mortality in immunocompromised individuals. Detection of oocysts in water is very difficult and current methodologies do not determine viability. This project has focused on low level detection of **Cryptosporidium** parvum in environmental samples using a unique cultural method. Previously, cell culture methods have been used to assess the developmental stages of **Cryptosporidium**; however, no cultural methods have been employed with environmental samples. The percentage of viable oocysts can be estimated by detecting intracellular developmental stages of the parasite using fluorescently labelled **antibodies**. Other methods are not capable of low level detection or high sensitivity. We are evaluating detection of single foci of infection, indicating that one of the four sporozoites released from the viable oocyst has infected a single cell. (C) 1997 IAWQ. Published by Elsevier Science Ltd.

L5 ANSWER 28 OF 38 SCISEARCH COPYRIGHT 2003 ISI (R)
ACCESSION NUMBER: 91:84219 SCISEARCH
THE GENUINE ARTICLE: EV982
TITLE: CRYPTOSPORIDIUM INFECTION IN ACQUIRED-IMMUNODEFICIENCY-
SYNDROME - NOT ALWAYS A POOR PROGNOSIS
AUTHOR: SALTZBERG D M (Reprint); KOTLOFF K L; NEWMAN J L; FASTIGGI
R
CORPORATE SOURCE: UNIV MARYLAND, SCH MED, DEPT MED, DIV GASTROENTEROL,
BALTIMORE, MD, 21201; UNIV MARYLAND, SCH MED, DEPT PEDIAT,
BALTIMORE, MD, 21201
COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF CLINICAL GASTROENTEROLOGY, (1991) Vol. 13, No.
1, pp. 94-97.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: CLIN
LANGUAGE: ENGLISH
REFERENCE COUNT: 31

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Chronic diarrhea and malabsorption accompanied by simultaneous infection with the protozoa *Giardia lamblia* and **Cryptosporidium** occurred in a 22-year-old homosexual man with **antibody** to human immunodeficiency virus (HIV). Small bowel biopsy demonstrated total villous atrophy and marked mononuclear infiltration in the lamina propria simulating celiac disease. Treatment with metronidazole resulted in resolution of diarrhea, clearance of parasites, and marked improvement in small bowel histology. Although diarrhea and malabsorption in immunocompromised patients with cryptosporidiosis are regarded as ominous, our patient remained disease free for the next 3 years. Thus, infection with **Cryptosporidium** in patients with HIV does not always lead to intractable diarrhea or death.

L5 ANSWER 29 OF 38 USPATFULL
ACCESSION NUMBER: 2003:33298 USPATFULL
TITLE: Methods for detection of **Cryptosporidium**
species and isolates and for diagnosis of
Cryptosporidium infections
INVENTOR(S): Petersen, Carolyn, San Diego, CA, United States
Barnes, Debra A., Oakland, CA, United States
Nelson, Richard C., Sausalito, CA, United States
Gut, Jiri, Novato, CA, United States
PATENT ASSIGNEE(S): The Regents of the University of California, Oakland,
CA, United States (U.S. corporation)

NUMBER KIND DATE

PATENT INFORMATION: US 6514697 B1 20030204
APPLICATION INFO.: US 2000-588995 20000606 (9)
RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1997-827171, filed
on 27 Mar 1997, now patented, Pat. No. US 6254869
Continuation-in-part of Ser. No. US 1997-928361, filed
on 12 Sep 1997, now patented, Pat. No. US 6071518
Continuation-in-part of Ser. No. US 1996-700651, filed
on 14 Aug 1996, now patented, Pat. No. US 6015882
Continuation-in-part of Ser. No. US 1995-415751, filed
on 3 Apr 1995, now patented, Pat. No. US 5643772
Continuation of Ser. No. US 1993-71880, filed on 1 Jun
1993, now abandoned Continuation-in-part of Ser. No. US
1992-891301, filed on 29 May 1992, now abandoned

| | NUMBER | DATE |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | US 1996-26062P | 19960913 (60) |
| | US 1996-14233P | 19960327 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | GRANTED | |
| PRIMARY EXAMINER: | Whisenant, Ethan C. | |
| LEGAL REPRESENTATIVE: | Verny, Hana | |
| NUMBER OF CLAIMS: | 34 | |
| EXEMPLARY CLAIM: | 1 | |
| NUMBER OF DRAWINGS: | 19 Drawing Figure(s); 14 Drawing Page(s) | |
| LINE COUNT: | 4181 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Cryptosporidium GP900, P68 and cryptopain antigens, **antibodies**
, DNA or RNA for detection of Cryptosporidium in biological and
environmental samples. A method for diagnosis of cryptosporidiosis. Kits
and assays for the detection of Cryptosporidium comprising antigens,
antibody, DNA or RNA components for immunological detection of
Cryptosporidium protein with **antibody**, or detection of
Cryptosporidium DNA by PCR amplification with GP900, P68 or cryptopain
primers and probes for hybridization.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 30 OF 38 USPATFULL

ACCESSION NUMBER: 2002:323079 USPATFULL
TITLE: Photosensitizer conjugates for pathogen targeting
INVENTOR(S): Hasan, Tayyaba, Arlington, MA, UNITED STATES
Hamblin, Michael R., Revere, MA, UNITED STATES
Soukos, Nikos, Revere, MA, UNITED STATES

| | NUMBER | KIND | DATE |
|-----------------------|---|------|---------------|
| PATENT INFORMATION: | US 2002183245 | A1 | 20021205 |
| APPLICATION INFO.: | US 2002-143593 | A1 | 20020509 (10) |
| RELATED APPLN. INFO.: | Division of Ser. No. US 1997-812606, filed on 6 Mar 1997, PENDING | | |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | APPLICATION | | |
| LEGAL REPRESENTATIVE: | FROMMER LAWRENCE & HAUG, 745 FIFTH AVENUE- 10TH FL., NEW YORK, NY, 10151 | | |
| NUMBER OF CLAIMS: | 56 | | |
| EXEMPLARY CLAIM: | 1 | | |
| NUMBER OF DRAWINGS: | 11 Drawing Page(s) | | |
| LINE COUNT: | 2695 | | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Conjugate molecules which include photosensitizer compositions
conjugated to non-**antibody** non-affinity pair targeting
moieties and methods of making and using such conjugates are described.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 31 OF 38 USPATFULL

ACCESSION NUMBER: 2002:268754 USPATFULL
TITLE: Compositions and methods for prevention and treatment
of protozoal disease
INVENTOR(S): Hundley, Bruce, Versailles, KY, United States
Maclin, Robert, Lexington, KY, United States
PATENT ASSIGNEE(S): New Ace Research Company, Versailles, KY, United States
(U.S. corporation)

| | NUMBER | KIND | DATE |
|---------------------|----------------|------|--------------|
| PATENT INFORMATION: | US 6465460 | B1 | 20021015 |
| APPLICATION INFO.: | US 2001-806975 | | 20010913 (9) |

| | NUMBER | DATE |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | US 1998-103543P | 19981008 (60) |
| | US 1998-112175P | 19981214 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | GRANTED | |
| PRIMARY EXAMINER: | Krass, Frederick | |
| ASSISTANT EXAMINER: | Jagoe, Donna | |
| LEGAL REPRESENTATIVE: | Sutherland Asbill & Brennan, LLP | |
| NUMBER OF CLAIMS: | 21 | |
| EXEMPLARY CLAIM: | 1 | |
| NUMBER OF DRAWINGS: | 0 Drawing Figure(s); 0 Drawing Page(s) | |
| LINE COUNT: | 1132 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A composition is provided that has been specially adapted for parenteral administration, e.g., intranasal, intramuscular, subcutaneous, transdermal or intravenous administration, wherein the composition is comprised of at least one anti-protozoal drug in a therapeutically effective amount for the treatment or prevention of protozoan infections in man and in animals. In one embodiment, the anti-protozoal drug is a triazine-based anticoccidial agent, e.g., a triazinedione or triazinetrione such as diclazuril, toltrazuril, sulfonotoltrazuril or water-soluble sodium salts thereof. In a presently preferred embodiment, the triazine-based anticoccidial agent is sulfonototrazuril. Methods of treatment of protozoal infections in man and animals are also provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 32 OF 38 USPATFULL

ACCESSION NUMBER: 2002:265841 USPATFULL
TITLE: Compositions, methods and kits for determining the
presence of cryptosporidium parvum organisms in a test
sample
INVENTOR(S): Cunningham, Melissa M., Gresham, OR, UNITED STATES
Stull, Paul D., San Diego, CA, UNITED STATES
Weisburg, William G., San Diego, CA, UNITED STATES

| | NUMBER | KIND | DATE |
|---------------------|----------------|------|--------------|
| PATENT INFORMATION: | US 2002146717 | A1 | 20021010 |
| APPLICATION INFO.: | US 2001-954586 | A1 | 20010911 (9) |

| | NUMBER | DATE |
|-----------------------|---|---------------|
| PRIORITY INFORMATION: | US 2000-232028P | 20000912 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | APPLICATION | |
| LEGAL REPRESENTATIVE: | GEN PROBE INCORPORATED, 10210 GENETIC CENTER DRIVE, SAN DIEGO, CA, 92121 | |
| NUMBER OF CLAIMS: | 86 | |
| EXEMPLARY CLAIM: | 1 | |

NUMBER OF DRAWINGS: 2 Drawing Page(s)

LINE COUNT: 4209

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention describes novel oligonucleotides targeted to nucleic acid sequences derived from *Cryptosporidium* organisms, and *Cryptosporidium parvum* organisms in particular, which are useful for determining the presence of *Cryptosporidium* organisms in a test sample. The oligonucleotides of the present invention include hybridization assay probes, helper probes and amplification primers. The present invention further describes a novel method for obtaining purified ribonucleic acid from viable oocysts.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 33 OF 38 USPATFULL

ACCESSION NUMBER: 2002:262378 USPATFULL

TITLE: Photosensitizer conjugates for pathogen targeting

INVENTOR(S): Hasan, Tayyaba, Arlington, MA, United States
Hamblin, Michael R., Revere, MA, United States
Soukos, Nikos, Revere, MA, United States

PATENT ASSIGNEE(S): The General Hospital Corporation, Boston, MA, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|--|------|--------------|
| PATENT INFORMATION: | US 6462070 | B1 | 20021008 |
| APPLICATION INFO.: | US 1997-812606 | | 19970306 (8) |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | GRANTED | | |
| PRIMARY EXAMINER: | Travers, Russell | | |
| LEGAL REPRESENTATIVE: | Frommer Lawrence & Haug LLP, Kowalski, Thomas J., Leahy, Amy | | |
| NUMBER OF CLAIMS: | 5 | | |
| EXEMPLARY CLAIM: | 1 | | |
| NUMBER OF DRAWINGS: | 11 Drawing Figure(s); 11 Drawing Page(s) | | |
| LINE COUNT: | 2666 | | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Conjugate molecules which include photosensitizer compositions conjugated to non-**antibody** non-affinity pair targeting moieties and methods of making and using such conjugates are described.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 34 OF 38 USPATFULL

ACCESSION NUMBER: 2002:164417 USPATFULL

TITLE: Compositions and vaccines containing antigen(s) of *cryptosporidium parvum* and of another pathogen

INVENTOR(S): Audonnet, Jean-Christophe, Lyon, FRANCE
Gallo, Guillermo, Athens, GA, UNITED STATES

| | NUMBER | KIND | DATE |
|---------------------|----------------|------|--------------|
| PATENT INFORMATION: | US 2002086031 | A1 | 20020704 |
| APPLICATION INFO.: | US 2000-742512 | A1 | 20001220 (9) |

| | NUMBER | DATE |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | US 1999-171399P | 19991221 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | APPLICATION | |
| LEGAL REPRESENTATIVE: | William S. Frommer, c/o FROMMER LAWRENCE & HAUG LLP, 745 Fifth Avenue, New York, NY, 10151 | |
| NUMBER OF CLAIMS: | 55 | |
| EXEMPLARY CLAIM: | 1 | |
| NUMBER OF DRAWINGS: | 13 Drawing Page(s) | |
| LINE COUNT: | 2400 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Combination compositions including *C. parvum* antigen(s) or epitope(s) of interest with at least one other antigen or epitope of interest from a pathogen that causes enteric infection and/or symptoms and/or recombinant(s) and/or vector(s) and/or plasmid(s) expressing such antigen(s) or epitope(s) of interest and administration of such compositions such as to pregnant mammals and/or newborn or young mammals, for instance, pregnant cows and/or calves such as within the first month of birth, are disclosed and claimed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 35 OF 38 USPATFULL

ACCESSION NUMBER: 2000:153489 USPATFULL
TITLE: Method for the detection of viable *Cryptosporidium parvum* oocysts
INVENTOR(S): Williams, Keith Leslie, Frenchs Forest, Australia
Vesey, Graham, Drummoyne, Australia
Veal, Duncan, Turramurra, Australia
Ashbolt, Nicholas John, Potts Point, Australia
Dorsch, Matthias, Lane Cove, Australia
PATENT ASSIGNEE(S): Macquarie Research, Ltd., Sydney, Australia (non-U.S. corporation)
Australian Water Technologies Pty. Ltd., Sydney, Australia (non-U.S. corporation)

| | NUMBER | KIND | DATE |
|---------------------|----------------|------|--------------------------|
| PATENT INFORMATION: | US 6146855 | | 20001114 |
| | WO 9634978 | | 19961107 |
| APPLICATION INFO.: | US 1998-952376 | | 19980303 (8) |
| | WO 1996-AU274 | | 19960506 |
| | | | 19980303 PCT 371 date |
| | | | 19980303 PCT 102(e) date |

| | NUMBER | DATE |
|-----------------------|--|----------|
| PRIORITY INFORMATION: | AU 1995-2831 | 19950505 |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | Granted | |
| PRIMARY EXAMINER: | Arthur, Lisa B. | |
| ASSISTANT EXAMINER: | Enewold, Jeanine | |
| LEGAL REPRESENTATIVE: | Barnes & Thornburg, Martin, Alice O. | |
| NUMBER OF CLAIMS: | 11 | |
| EXEMPLARY CLAIM: | 1,4 | |
| NUMBER OF DRAWINGS: | 3 Drawing Figure(s); 4 Drawing Page(s) | |
| LINE COUNT: | 516 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Oligonucleotide molecules and methods are disclosed for the detection of viable oocysts or other cells of the protozoa species, *Cryptosporidium parvum*. Preferred oligonucleotide molecules are selected from the group comprising oligonucleotides having one or more of the following sequences: (a) ACA ATT ATT, (b) CTT TTT GGT, (c) ATT TTA TAT AAA ATA TTT TGA TGA A, (d) TTT TTT TTT TTA GTA T, (e) TAT ATT TTT TAT CTG, (f) CTT TAC TTA CAT GGA TAA CCG, or comprising a part of the sequences (a) to (f) above so as to allow specific hybridization to unique 18S rRNA sequences of *C. parvum*.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 36 OF 38 USPATFULL

ACCESSION NUMBER: 2000:88187 USPATFULL
TITLE: Nitro-[2,1-b]imidazopyran compounds and antibacterial uses thereof
INVENTOR(S): Baker, William R., Bellevue, WA, United States
Shaopei, Cai, Seattle, WA, United States

PATENT ASSIGNEE(S): Keeler, Eric L., Seattle, WA, United States
PathoGenesis Corporation, Seattle, WA, United States
(U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|--|------|--------------|
| PATENT INFORMATION: | US 6087358 | | 20000711 |
| APPLICATION INFO.: | US 1997-924559 | | 19970905 (8) |
| RELATED APPLN. INFO.: | Continuation-in-part of Ser. No. WO 1996-US10904, filed on 25 Jun 1996 which is a continuation-in-part of Ser. No. US 1995-496850, filed on 26 Jun 1995, now patented, Pat. No. US 5668127 | | |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | Granted | | |
| PRIMARY EXAMINER: | Shah, Mukund J. | | |
| ASSISTANT EXAMINER: | Truong, Tamthom N. | | |
| LEGAL REPRESENTATIVE: | Christensen O'Connor Johnson & Kindness PLLC | | |
| NUMBER OF CLAIMS: | 7 | | |
| EXEMPLARY CLAIM: | 1 | | |
| NUMBER OF DRAWINGS: | 5 Drawing Figure(s); 5 Drawing Page(s) | | |
| LINE COUNT: | 2361 | | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Methods, compounds and compositions are provided for inhibiting the growth of pathogenic microbes in vitro and of treatment of pathogenic bacterial infections, such as mycobacterial, Clostridium, Cryptosporidium and Helicobacter infections, in vivo using bicyclic nitroimidazole compounds of the formula (II): ##STR1## wherein R.sub.1 is hydrogen, halogen, loweralkyl, haloloweralkyl, cycloalkyl, heterocycle, substituted heterocycle and heterocyclicalkyl; X is oxygen, sulfur or NR.sub.2, where R.sub.2 is hydrogen, loweralkyl, aryl, cycloalkyl, heterocycle, substituted heterocycle, heterocyclicalkyl, COR.sub.3 or SO.sub.2 R.sub.4 CONR.sub.4 R.sub.5, where R.sub.3, R.sub.4 and R.sub.5 are independently selected from hydrogen, loweralkyl, aryl, alkylaryl, alkoxyalkyl, alkoxyaryl, alkoxyalkoxyaryl, alkylheterocycle, and alkoxyheterocycle; n is 1, 2 or 3; Y and Z are independently selected from oxygen, CH.sub.2, CO, CR.sub.4 R.sub.5 or NR.sub.4, where R.sub.4 and R.sub.5 are as defined above; provided that when n is 2 or 3, the compounds of formula II can be additionally substituted as follows: ##STR2## wherein R.sub.6, R.sub.7, R.sub.8 and R.sub.9 are independently selected from hydrogen, loweralkyl, aryl, alkylaryl, alkoxyalkyl, alkoxyalkylaryl, alkoxyalkylheterocycle, alkylaryl2alkylaryl, alkylarylaryl, alkylcycloalkyl, alkoxyaryl, alkylheterocycle, and alkoxyheterocycle; and the pharmaceutically acceptable salts thereof.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 37 OF 38 USPATFULL
ACCESSION NUMBER: 1999:40171 USPATFULL
TITLE: Methods and articles of manufacture for the detection of cryptosporidium occysts
INVENTOR(S): Crabb, Joseph H., Newfield, ME, United States
Turner, Nathan, Newmarket, NH, United States
PATENT ASSIGNEE(S): ImmuCell Corporation, Portland, ME, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|----------------------|------|--------------|
| PATENT INFORMATION: | US 5888748 | | 19990330 |
| APPLICATION INFO.: | US 1995-502328 | | 19950713 (8) |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | Granted | | |
| PRIMARY EXAMINER: | Housel, James C. | | |
| ASSISTANT EXAMINER: | Portmer, Ginny Allen | | |
| LEGAL REPRESENTATIVE: | Farrell, Kevin M. | | |
| NUMBER OF CLAIMS: | 16 | | |

EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 785
AB Embodiments of the present invention relate to methods and articles of manufacture for the detection of Giardia cysts and **Cryptosporidium** oocysts.

L5 ANSWER 38 OF 38 USPATFULL

ACCESSION NUMBER: 97:56538 USPATFULL
TITLE: Cryptosporidium hybrid vector and transformed host cells
INVENTOR(S): Petersen, Carolyn, Berkeley, CA, United States
Leech, James, Daly City, CA, United States
Nelson, Richard C., San Francisco, CA, United States
Gut, Jiri, Novato, CA, United States
PATENT ASSIGNEE(S): The Regents of the University of California, Oakland, CA, United States (U.S. corporation)

| | NUMBER | KIND | DATE |
|-----------------------|--|------|--------------|
| PATENT INFORMATION: | US 5643772 | | 19970701 |
| APPLICATION INFO.: | US 1995-415751 | | 19950403 (8) |
| RELATED APPLN. INFO.: | Continuation of Ser. No. US 1993-71880, filed on 1 Jun 1993, now abandoned which is a continuation-in-part of Ser. No. US 1992-891301, filed on 29 May 1992, now abandoned | | |
| DOCUMENT TYPE: | Utility | | |
| FILE SEGMENT: | Granted | | |
| PRIMARY EXAMINER: | Housel, James C. | | |
| ASSISTANT EXAMINER: | Portner, Ginny Allen | | |
| LEGAL REPRESENTATIVE: | Verny, Hana | | |
| NUMBER OF CLAIMS: | 4 | | |
| EXEMPLARY CLAIM: | 1 | | |
| NUMBER OF DRAWINGS: | 7 Drawing Figure(s); 4 Drawing Page(s) | | |
| LINE COUNT: | 2279 | | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention comprises a Cryptosporidium hybrid vector comprising a regulatory DNA segment operably coupled to a DNA fragment encoding a polypeptide to which anti-Cryptosporidium **antibodies** specifically bind and transformed host cells comprising the hybrid vectors.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH, USPATFULL, JAPIO' ENTERED AT 19:20:29 ON 24 MAR 2003

L1 133 S CRYPTOSPORIDIUM
L2 62 S L1 AND OOCYSTS
L3 1 S L2 AND IGG1
L4 4 S L2 AND IGG
L5 38 S L1 AND ANTIBOD?

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☐ 1: J Parasitol 1997 Oct;83(5):957-60

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Enzyme-linked immunosorbent assay for the detection of *Cryptosporidium parvum* IgG in the serum of cats.

Lappin MR, Ungar B, Brown-Hahn B, Cooper CM, Spilker M, Thrall MA, Hill SL, Cheney J, Taton-Allen G.

PubMed
Services

Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins 80523, USA.

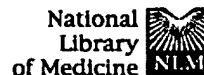
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The objective was to develop an enzyme-linked immunosorbent assay (ELISA) for the detection of *Cryptosporidium parvum* IgG in the serum of cats. The ELISA was an indirect ELISA using soluble *C. parvum* oocyst antigens and a peroxidase-labeled anti-feline IgG secondary antibody. Sera from cats with *Toxocara felis*, *Giardia* spp., *Aelurostrongylus abstrusus*, *Isospora felis*, *Isospora rivolta*, *Toxoplasma gondii*, or *Taenia* spp. infections were assayed in specificity studies. Following optimization, the ELISA and fecal examination for oocysts were performed on samples from 170 client-owned or humane society source cats and 1 cat inoculated orally with *C. parvum* oocysts. *Cryptosporidium parvum* oocysts were detected in feces (4/170; 2.4%), and *C. parvum* IgG was detected in serum (26/170; 15.3%) from naturally exposed cats. The seroprevalence data suggest that some cats in the geographical area studied were exposed to *C. parvum*, but persistent oocyst shedding was less common. The ELISA is not useful for predicting oocyst shedding in individual cats.

PMID: 9379309 [PubMed - indexed for MEDLINE]

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☐ 1: Korean J Parasitol 1996 Dec;34(4):255-8

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Chronologic change of serum IgG antibody response in chickens reinfected with *Cryptosporidium baileyi*.

Rhee JK, Kim HC, Park BK.

PubMed
Services

Bio-Safety Research Institute, Chonbuk National University, Chonju, Korea.

Related
Resources

Eight 2-day-old SPF chickens were each inoculated orally with a single dose of 5×10^5 oocysts of *Cryptosporidium baileyi*, and immunoglobulin G (IgG) antibody responses were chronologically measured by indirect immunofluorescent antibody (IFA) assay. Anti-*C. baileyi* IgG antibody levels remained high (1:106.67 to 1:512.00) for at least 4 months with 330 days of a detectable period. Ten days after the negative conversion, each chicken was re-challenged with 1×10^7 oocysts of the same species. Subsequent infection in 340-day-old individuals caused sudden elevated IgG antibody levels and the titer peaked on day 28 postchallenge inoculation (PCI), at 1:1.024 with a 65 days of detection period. Chickens in primary infection showed oocyst shedding profiles, but did not exhibit any oocyst shedding before or after experimental reinfection.

PMID: 9017911 [PubMed - indexed for MEDLINE]

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☐ 1: Vet Parasitol 1993 Oct;50(1-2):45-54

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PubMed

Serum antibody response in lambs naturally and experimentally infected with *Cryptosporidium parvum*.

Ortega-Mora LM, Troncoso JM, Rojo-Vazquez FA, Gomez-Bautista M.

PubMed
Services

Departamento de Patologia Animal I (Sanidad Animal), Facultad de Veterinaria, Universidad Complutense de Madrid, Spain.

Related
Resources

The immunoglobulin (IgG), IgM and IgA responses in Castellana-Manchega cross-bred colostrum-deprived and colostrum-fed lambs infected neonatally with *Cryptosporidium parvum* were measured using an enzyme-linked immunosorbent assay. A comparison of oocyst shedding and anti-*C. parvum* serum IgG levels in lambs suffering either natural or experimental infection was undertaken. Effects on the oocyst shedding and IgG levels of *C. parvum* rechallenge at 30 and 120 days of age in neonatally infected lambs were also evaluated. Anti-*C. parvum* immunoglobulin levels in colostrum-deprived animals peaked on Day 30 of life for IgG and on Day 15 for IgM and IgA. Lambs that received maternal colostrum showed elevated anti-*C. parvum* IgG, IgM and IgA levels at 3 days old indicating a transfer of colostral immunoglobulins. Experimentally infected lambs showed a IgG response similar to naturally infected lambs, suggesting that the serum IgG response is independent of the infective dose. Finally, lambs rechallenged at 30 and 120 days old did not show either appreciable oocyst shedding or any increase in their anti-*C. parvum* IgG levels when compared with prechallenged animals.

PMID: 8291196 [PubMed - indexed for MEDLINE]

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- ☐ 1: [Lappin MR, Ungar B, Brown-Hahn B, Cooper CM, Spilker M, Thrall MA, Hill SL, Cheney J, Taton-Allen G.](#) Related Articles, Links



Enzyme-linked immunosorbent assay for the detection of *Cryptosporidium parvum* IgG in the serum of cats.
J Parasitol. 1997 Oct;83(5):957-60.
PMID: 9379309 [PubMed - indexed for MEDLINE]

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- ☐ 2: [Rhee JK, Kim HC, Park BK.](#) Related Articles, Links



Chronologic change of serum IgG antibody response in chickens reinfected with *Cryptosporidium baileyi*.
Korean J Parasitol. 1996 Dec;34(4):255-8.
PMID: 9017911 [PubMed - indexed for MEDLINE]

- ☐ 3: [Ortega-Mora LM, Troncoso JM, Rojo-Vazquez FA, Gomez-Bautista M.](#) Related Articles, Links



Serum antibody response in lambs naturally and experimentally infected with *Cryptosporidium parvum*.
Vet Parasitol. 1993 Oct;50(1-2):45-54.
PMID: 8291196 [PubMed - indexed for MEDLINE]

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- ☐ 4: [Chen W, Harp JA, Harmsen AG, Havell EA.](#) Related Articles, Links



Gamma interferon functions in resistance to *Cryptosporidium parvum* infection in severe combined immunodeficient mice.
Infect Immun. 1993 Aug;61(8):3548-51.
PMID: 8335387 [PubMed - indexed for MEDLINE]

- ☐ 5: [Hill BD, Dawson AM, Blewett DA.](#) Related Articles, Links



Neutralisation of *Cryptosporidium parvum* sporozoites by immunoglobulin and non-immunoglobulin components in serum.
Res Vet Sci. 1993 May;54(3):356-60.
PMID: 8337483 [PubMed - indexed for MEDLINE]

- ☐ 6: [Lorenzo Lorenzo MJ, Ares-Mazas E, Villacorta Martinez de Maturana I.](#) Related Articles, Links



Detection of oocysts and IgG antibodies to *Cryptosporidium parvum* in asymptomatic adult cattle.
Vet Parasitol. 1993 Mar;47(1-2):9-15.
PMID: 8493772 [PubMed - indexed for MEDLINE]

- ☐ 7: [Ungar BL, Mulligan M, Nutman TB.](#) Related Articles, Links



Serologic evidence of *Cryptosporidium* infection in US volunteers before and during Peace Corps service in Africa.
Arch Intern Med. 1989 Apr;149(4):894-7.
PMID: 2705839 [PubMed - indexed for MEDLINE]

☐ **8:** [Williams RO, Burden DJ.](#)

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Measurement of class specific antibody against cryptosporidium in serum and faeces from experimentally infected calves.

Res Vet Sci. 1987 Sep;43(2):264-5.

PMID: 3685641 [PubMed - indexed for MEDLINE]

☐ **9:** [Casemore DP.](#)

[Related Articles, Links](#)



The antibody response to Cryptosporidium: development of a serological test and its use in a study of immunologically normal persons.

J Infect. 1987 Mar;14(2):125-34.

PMID: 3553337 [PubMed - indexed for MEDLINE]

☐ **10:** [Ungar BL, Nash TE.](#)

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Quantification of specific antibody response to Cryptosporidium antigens by laser densitometry.

Infect Immun. 1986 Jul;53(1):124-8.

PMID: 3522424 [PubMed - indexed for MEDLINE]

☐ **11:** [Ungar BL, Soave R, Fayer R, Nash TE.](#)

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Enzyme immunoassay detection of immunoglobulin M and G antibodies to Cryptosporidium in immunocompetent and immunocompromised persons.

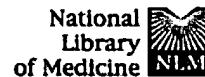
J Infect Dis. 1986 Mar;153(3):570-8.

PMID: 3950440 [PubMed - indexed for MEDLINE]

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☐ 1: J Infect Dis 1986 Mar;153(3):570-8

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Enzyme immunoassay detection of immunoglobulin M and G antibodies to *Cryptosporidium* in immunocompetent and immunocompromised persons.

Ungar BL, Soave R, Fayer R, Nash TE.

PubMed
Services

Cryptosporidium is a parasite of the human gastrointestinal tract and has a worldwide distribution. We developed a sensitive and reproducible enzyme immunoassay for detection of serum IgG or IgM to *Cryptosporidium*. For IgG, 13 of 15 patients with cryptosporidiosis and 26 of 26 patients with cryptosporidiosis and AIDS were positive, whereas 57 of 60 presumably uninfected individuals were negative. All three IgG-positive presumably uninfected individuals had been potentially exposed. Sensitivity and specificity of this assay was 95%. Patients without AIDS showed an early rise and fall of IgM and later elevation of IgG; some patients with AIDS produced IgM, and all produced IgG. Sera from 9 (20.9%) of 44 Ecuadorian children with diarrhea were positive for both IgM and IgG antibodies; 106 sera from persons with other parasitic illnesses showed a normal distribution for IgG antibody. These ELISA data show that patients without and with AIDS have serum antibody response to *Cryptosporidium* and suggest that exposure to or infection with *Cryptosporidium* is common.

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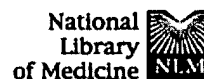
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☐ 1: Res Vet Sci 1993 May;54(3):356-60

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Neutralisation of *Cryptosporidium parvum* sporozoites by immunoglobulin and non-immunoglobulin components in serum.

Hill BD, Dawson AM, Blewett DA.

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Moredun Research Institute, Edinburgh.

Sporozoites of *Cryptosporidium parvum* were incubated in 1:10 dilutions of immune or non-immune, heat-inactivated lamb serum specimens or serum fractions. The infectivity of treated sporozoites was assessed by inoculating them, per rectum, into five-day-old rats followed by histological examination of their intestines at either three or five days after infection. The infectivity of sporozoites treated with heat-inactivated whole sera was greatly reduced. This neutralisation had both specific and non-specific components. The former was associated with the IgG fraction of hyperimmune serum raised against sporozoites and the latter with a heat-stable, non-dialysable component present in both IgG-depleted hyperimmune serum and uninfected gnotobiotic serum.

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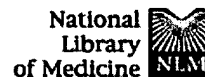
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☐ 1: Vet Parasitol 1993 Mar;47(1-2):9-15

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Detection of oocysts and IgG antibodies to *Cryptosporidium parvum* in asymptomatic adult cattle.

Lorenzo Lorenzo MJ, Ares-Mazas E, Villacorta Martinez de Maturana I.

PubMed
Services

Department of Microbiology and Parasitology, Faculty of Pharmacy, University of Santiago de Compostela, La Coruna, Spain.

Related
Resources

Infection by *Cryptosporidium* was detected in 94 (71.75%) asymptomatic adult cattle from 131 fecal samples examined microscopically. In two cases *Cryptosporidium* oocysts were observed which were distinctly larger (5.5-6.5 microns x 6.6-7.0 microns) than those we had seen in the majority of feces examined (4.0-4.5 microns x 4.0-4.5 microns) and these specimens were considered to be *Cryptosporidium muris*; it is possible that the other oocysts should be considered as *Cryptosporidium parvum*. The seroprevalence of IgG antibodies to *Cryptosporidium* was 63.35% as detected by indirect fluorescent antibody test (IFAT) and 51.41% by enzyme-linked immunosorbent assay (ELISA). In 27 cases, the presence of IgG antibodies to *Cryptosporidium* (as tested by IFAT and ELISA) in serum samples was correlated with oocyst excretion.

PMID: 8493772 [PubMed - indexed for MEDLINE]

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☐ 1: Arch Intern Med 1989 Apr;149(4):894-7

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Serologic evidence of *Cryptosporidium* infection in US volunteers before and during Peace Corps service in Africa.

Ungar BL, Mulligan M, Nutman TB.

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Division of Tropical Public Health, Uniformed Services University of the Health Sciences, Bethesda, Md 20814-4799.

Related
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To obtain prevalence data on *Cryptosporidium* infection in healthy US adults and to determine how often *Cryptosporidium* infection occurs after relocation to a situation of potentially great exposure, an enzyme-linked immunosorbent assay for anti-*Cryptosporidium* IgM or IgG was used to examine serum from 75 US Peace Corps volunteers before overseas service and after up to two years in West Africa. Of the volunteers, 32% had detectable anti-*Cryptosporidium* IgG initially, suggesting that infection sometime in life is common. After six weeks, one year, or two years overseas, 5% (1/19), 14% (8/56), and 13.6% (3/22), respectively, became newly IgG positive. This implies that the risk of acquiring *Cryptosporidium* infection and its associated diarrhea is real for travelers and temporary workers in endemic areas. Persistence of IgG and/or IgM response for 12 months or more occurred in some volunteers, although the significance is unclear.

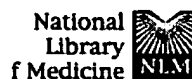
PMID: 2705839 [PubMed - indexed for MEDLINE]

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☐ 1: Res Vet Sci 1987 Sep;43(2):264-5

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Measurement of class specific antibody against cryptosporidium in serum and faeces from experimentally infected calves.

Williams RO, Burden DJ.

PubMed
Services

North East Surrey College of Technology, Ewell.

Anti-cryptosporidium antibody levels were measured in serum and faeces of experimentally infected calves. In serum, IgG was detectable six days after infection and remained elevated throughout infection. IgA and IgM in serum showed little change. IgG, IgA and IgM levels all rose in the faeces five or six days after infection and reached a peak between days 8 and 14 after infection and then declined.

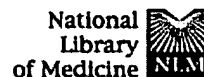
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☐ 1: J Infect 1987 Mar;14(2):125-34

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The antibody response to *Cryptosporidium*: development of a serological test and its use in a study of immunologically normal persons.

Casemore DP.

PubMed
Services

The demonstration of an immune response in the relatively newly recognised infection of human beings, cryptosporidiosis, is essential for assessing pathogenicity, for diagnostic purposes, and for epidemiological studies. In addition, serological methods may be applied to the detection and definitive identification of the parasite. Earlier reports were of histologically based methods with tissue from experimentally infected animals and did not define the nature of the response. The method described here is simple and rapid. It may be done in laboratories not equipped to perform the earlier methods. Results confirm that oocysts may be used to detect antibody in the blood of human beings, to determine when sero-conversion takes place and to define the nature of the response in terms of the class of immunoglobulin. Some sero-epidemiological observations have been made.

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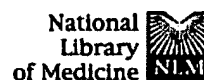
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☐ 1: Infect Immun 1986 Jul;53(1):124-8

[Related Articles, Links](#)

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Quantification of specific antibody response to *Cryptosporidium* antigens by laser densitometry.

Ungar BL, Nash TE.

PubMed
Services

Cryptosporidium spp. is a protozoan parasite with worldwide distribution associated with diarrhea in immunocompromised patients (particularly those with acquired immunodeficiency syndrome [AIDS]) and in immunocompetent humans. Immunoglobulin M (IgM) and IgG antibody responses are readily detected by an enzyme-linked immunosorbent assay. To determine which *Cryptosporidium* antigens invoke antibody responses in humans, we performed polyacrylamide gel electrophoresis using purified oocysts, followed by Western blots with human sera from various populations. Of 40 sera from persons with cryptosporidiosis (24 AIDS and 16 non-AIDS patients), in 37 (93%) a 23,000-dalton antigen measured quantitatively by laser densitometry was recognized. Of 63 sera from IgM- or IgG-positive individuals, as determined by enzyme-linked immunosorbent assay, in 58 (92%) this same antigen was recognized. Up to three additional bands between 125,000 and 175,000 daltons were identified by some of these sera. These results suggest that most persons infected with *Cryptosporidium* spp. produce antibodies which recognize at least one common low-molecular-weight antigen. Isolation of this antigen will be useful in development of diagnostic tests and may be important in the study of immunity.

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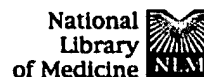
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- ☐ **1:** [Lappin MR, Ungar B, Brown-Hahn B, Cooper CM, Spilker M, Thrall MA, Hill SL, Cheney J, Taton-Allen G.](#) Related Articles, Links

Enzyme-linked immunosorbent assay for the detection of *Cryptosporidium parvum* IgG in the serum of cats.
J Parasitol. 1997 Oct;83(5):957-60.
PMID: 9379309 [PubMed - indexed for MEDLINE]

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Chronologic change of serum IgG antibody response in chickens reinfected with *Cryptosporidium baileyi*.
Korean J Parasitol. 1996 Dec;34(4):255-8.
PMID: 9017911 [PubMed - indexed for MEDLINE]

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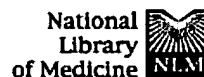
Serum antibody response in lambs naturally and experimentally infected with *Cryptosporidium parvum*.
Vet Parasitol. 1993 Oct;50(1-2):45-54.
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☐ 1: Lett Appl Microbiol 1997 Nov;25(5):316-20

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A simple method for evaluating *Cryptosporidium*-specific antibodies used in monitoring environmental water samples.

Vesey G, Deere D, Weir CJ, Ashbolt N, Williams KL, Veal DA.

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Macquarie University Centre for Analytical Biotechnology, School of Biological Sciences, Macquarie University, Sydney, NSW, Australia. gvesy@rna.bio.mq.edu.au

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A simple method is described for the evaluation and quality control of *Cryptosporidium*-specific antibodies used in monitoring environmental water samples. Purified oocysts were fluorescently labelled with a test antibody at the appropriate concentration. Labelled oocysts were analysed using flow cytometry and a region was defined on a bivariate dotplot of fluorescence versus light scatter that enclosed all oocysts. Concentrates of environmental water samples that did not contain oocysts were then incubated with the test antibody and analysed using flow cytometry. The number of particles that appeared in the region defined for oocysts was recorded and was a measure of non-specific binding. The technique provides a simple, rapid and quantitative tool for both evaluating the binding specificity of test antibodies and optimizing sample staining conditions.

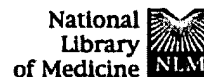
PMID: 9418064 [PubMed - indexed for MEDLINE]

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☐ 1: Int J Parasitol 1997 Nov;27(11):1353-9

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FULL-TEXT ARTICLE

Simple and rapid measurement of *Cryptosporidium* excystation using flow cytometry.

Vesey G, Griffiths KR, Gauci MR, Deere D, Williams KL, Veal DA.

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Macquarie University Centre for Analytical Biotechnology, School of Biological Sciences, Macquarie University, Sydney, NSW, Australia.
gvesey@rna.bio.mq.edu.au

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In vitro excystation is commonly used to determine the viability of samples of purified *Cryptosporidium parvum* oocysts. Following exposure to conditions that stimulate excystation, samples are examined microscopically to determine the number of excysted oocysts. The microscopy procedure is tedious and time consuming, and difficult to apply to most oocyst samples without a purification step. A simple flow cytometric method was developed for determining the numbers of oocysts that had excysted following the in vitro excystation procedure. Differences in light-scatter properties were used to differentiate intact, partially empty and empty oocysts. By staining samples with a monoclonal antibody specific to the oocyst wall it was possible to apply the technique to unpurified oocysts from faeces. Correlation of the flow cytometric and microscopic method was statistically significant ($P < 0.05$), resulting in a calculated correlation coefficient of 0.994. The flow cytometry method is faster and more sensitive than the microscopy procedure, and enables analysis of large numbers of samples and of many thousands of oocysts in each sample.

PMID: 9421723 [PubMed - indexed for MEDLINE]

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☐ 1: J Appl Bacteriol 1993 Jul;75(1):87-90

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Routine monitoring of Cryptosporidium oocysts in water using flow cytometry.

Vesey G, Slade JS, Byrne M, Shepherd K, Dennis PJ, Fricker CR.

PubMed
Services

Thames Water Utilities Ltd, Spencer House Laboratories, Reading, UK.

A flow cytometric method for the routine analysis of environmental water samples for the presence of *Cryptosporidium* oocysts has been developed. It uses a Coulter Epics Elite flow cytometer to examine water samples and to separate oocysts from contaminating debris by cell sorting. The sorted particles are then rapidly screened by microscopy. The method has been evaluated and compared with direct epifluorescence microscopy on 325 river, reservoir and drinking water samples. The technique was found to be more sensitive, faster and easier to perform than conventional epifluorescent microscopy for the routine examination of water samples for *Cryptosporidium*.

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PMID: 8365959 [PubMed - indexed for MEDLINE]

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Simple and Rapid Measurement of *Cryptosporidium* Excystation Using Flow Cytometry

G. Vesey^{a,*}, K. R. Griffiths^a, M. R. Gauci^b, D. Deere^a, K. L. Williams^a and D. A. Veal^a^a Macquarie University Centre for Analytical Biotechnology, School of Biological Sciences, Macquarie University, North Ryde Sydney, NSW 2109 Australia^b Centre for Lasers and Applications, Macquarie University, North Ryde Sydney, NSW 2109 Australia

Received 31 December 1996; accepted 27 June 1997. Available online 14 January 1998.

Abstract

In vitro excystation is commonly used to determine the viability of samples of purified *Cryptosporidium parvum* oocysts. Following exposure to conditions that stimulate excystation, samples are examined microscopically to determine the number of excysted oocysts. The microscopy procedure is tedious and time consuming, and difficult to apply to most oocyst samples without a purification step. A simple flow cytometric method was developed for determining the numbers of oocysts that had excysted following the *in vitro* excystation procedure. Differences in light-scatter properties were used to differentiate intact, partially empty and empty oocysts. By staining samples with a monoclonal antibody specific to the oocyst wall it was possible to apply the technique to unpurified oocysts from faeces. Correlation of the flow cytometric and microscopic method was statistically significant ($P < 0.05$), resulting in a calculated correlation coefficient of 0.994. The flow cytometry method is faster and more sensitive than the microscopy procedure, and enables analysis of large numbers of samples and of many thousands of oocysts in each sample.

Author Keywords: *Cryptosporidium*; oocysts; excystation; flow cytometry; viability

Index Terms: cryptosporidium

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*Corresponding author.

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Volume 27, Issue 11 , November 1997 , Pages 1353-1359

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Volume 33, Issue 7, May 1999, Pages 1611-1617

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Comparison of *Cryptosporidium*-specific and *Giardia*-specific monoclonal antibodies for monitoring water samples

B. C. Ferrari^{a, b, *}, G. Vesey^{a, b}, C. Weir^{a, b}, K. L. Williams^a and D. A. Veal^{a, b}^a Centre for Analytical Biotechnology, School of Biological Sciences, Macquarie University, Sydney, NSW 2109, Australia^b Australian Environmental Flow Cytometry Group, Macquarie University, Sydney, NSW 2109, Australia

Received 1 June 1998; accepted 1 September 1998. Available online 15 March 1999.

Abstract

Routine detection of *Cryptosporidium* oocysts and *Giardia* cysts depend on immunofluorescence assays (IFA) employing fluorescently labeled monoclonal antibodies. Commercially available mAbs used for the detection of *Cryptosporidium* oocysts are of the IgM or IgG3 subclass, whilst those used for *Giardia* analysis are of IgM and IgG classes including IgG1. These mAbs suffer from non-specific binding to detrital particles present in environmental samples resulting in high levels of background fluorescence. New mAbs of the IgG1 subclass to *Giardia* and *Cryptosporidium* selected primarily for water analysis have recently become available. These antibodies exhibited lower levels of non-specific particulate binding compared with commercially available antibodies. The degree of background fluorescence observed following mAb staining of particles that were not oocysts or cysts varied between the water types analysed.

Author Keywords: *Cryptosporidium*; *Giardia*; water testing; monoclonal antibodies; flow cytometry; detection

Index Terms: Water analysis; Water quality; Monoclonal antibodies; Protozoa; Fluorescence; Flow cytometry

*-Author to whom all correspondence should be addressed. [Fax:
+61-2-9850-8253; e-mail: bferrari@rna.bio.mq.edu.au]

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Viable *Cryptosporidium parvum* oocysts exposed to chlorine or other oxidising conditions may lack identifying epitopes

A. G. Moore^{1, 2}, G. Vesey², A. Champion², P. Scandizzo¹, D. Deere³, D. Veal³ and K. L. Williams^{3, *}

¹ Department of Biological Sciences University of Western Sydney-Nepean, Westmead, Sydney, NSW 2145 Australia

² CSIRO Australia, Division of Animal Production, Sydney, NSW 2148, Australia

³ Macquarie University Centre for Analytical Biotechnology, School of Biological Sciences, Macquarie University, Sydney, NSW 2109, Australia

Received 10 November 1997. Available online 27 December 1999.

Abstract

The intestinal protozoan parasite *Cryptosporidium parvum* is a known cause of water-borne disease in humans. The detection of *Cryptosporidium* oocysts in water samples relies upon the use of fluorescently labelled antibodies, preferably using flow cytometry and epifluorescence microscopy. Here we demonstrate that four commercially available antibodies recognise a similar set of immunodominant epitopes on the oocyst wall. These epitopes appear to be carbohydrate in nature and are labile to chlorine treatment and oxidising conditions. Sodium hypochlorite and sodium meta-periodate reduced the ability of the antibodies to detect *Cryptosporidium* oocysts. Damage to the epitopes did not necessarily reduce the viability of oocysts. This finding may be important for the water industry, where naturally occurring oxidising conditions or sanitising treatments could produce viable oocysts that are undetectable using standard protocols.

Author Keywords: *Cryptosporidium parvum*; Oocyst; Antibody; Sodium hypochlorite; Sodium meta-periodate; Flow cytometry; Western blotting

*Corresponding author. Tel: (61-2) 9850-8212; Fax: (61-2) 9850-8174.

International Journal for Parasitology

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The Infectivity of *Cryptosporidium parvum* in Healthy Volunteers

Herbert L. DuPont, M.D., Cynthia L. Chappell, Ph.D., Charles R. Sterling, Ph.D., Pablo C. Okhuysen, M.D., Joan B. Rose, Ph.D., and Walter Jakubowski

ABSTRACT

Background Small numbers of *Cryptosporidium parvum* oocysts can contaminate even treated drinking water, and ingestion of oocysts can cause diarrheal disease in normal as well as immunocompromised hosts. Since the number of organisms necessary to cause infection in humans is unknown, we performed a study to determine the infective dose of the parasite in healthy adults.

Methods After providing informed consent, 29 healthy volunteers without evidence of previous *C. parvum* infection, as determined by the absence of anti-cryptosporidium-specific antibodies, were given a single dose of 30 to 1 million *C. parvum* oocysts obtained from a calf. They were then monitored for oocyst excretion and clinical illness for eight weeks. Household contacts were monitored for secondary spread.

Results Of the 16 subjects who received an intended dose of 300 or more oocysts, 14 (88 percent) became infected. After a dose of 30 oocysts, one of five subjects (20 percent) became infected, whereas at a dose of 1000 or more oocysts, seven of seven became infected. The median infective dose, calculated by linear regression, was 132 oocysts. Of the 18 subjects who excreted oocysts after the challenge dose, 11 had enteric symptoms and 7 (39 percent) had clinical cryptosporidiosis, consisting of diarrhea plus at least one other enteric symptom. All recovered, and there were no secondary cases of diarrhea among household contacts.

Conclusions In healthy adults with no serologic evidence of past infection with *C. parvum*, a low dose of *C. parvum* oocysts is sufficient to cause infection.

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